CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: codex@fao.org - www.codexalimentarius.org

Agenda item 7 **CX/FH 24/54//8 Add.1**

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FOOD HYGIENE

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PROPOSED DRAFT REVISION ON *THE GUIDELINES ON THE APPLICATION OF GENERAL PRINCIPLES OF FOOD HYGIENE TO THE CONTROL OF PATHOGENIC VIBRIO SPECIES IN SEAFOOD* (CXG 73-2010)

Comments in reply to CL 2024/09/FH

Comments of Argentina, Australia, Canada, Colombia, Ecuador, European Union, Iraq, Japan, Kenya, New Zealand, Norway, Philippines, United Arab Emirates, United Kingdom, Uruguay, Venezuela (Bolivarian Republic of), Zambia and ICUMSA

Background

1. This document compiles comments received through the Codex Online Commenting System (OCS) in response to CL 2024/09/FH issued in January 2024. Under the OCS, comments are compiled in the following order: general comments are listed first, followed by comments on specific sections.

Explanatory notes on the appendix

2. The comments submitted through the OCS are hereby attached as **Annex I** and are presented in table format.

Annex I

GENERAL COMMENTS

COMMENT	MEMBER / OBSERVER
Australia thanks Japan and Chile for preparing paper CX/FH 24/54/8 presenting for comment a proposed draft revision of the Guidelines on the application of general principles of food hygiene to the control of pathogenic Vibrio species in seafood (CXG 73-2010). Australia considers this revision is well developed, noting only a few sections that would benefit from further discussion. We will provide further editorial changes to shorten long sentences and improve readability during the virtual working group meeting on 26 February. Consistency in terms with other Codex texts: • use of 'food industry' in several places, such as Section 2.1 Scope - should this be 'food business operators (FBOs)'? • use of 'regulators', instead of 'competent authorities', noting for the purposes of this text, use of 'regulators' would seem appropriate. • Indigenous versus endogenous; both are used – both seem appropriate in context but clarification of whether there is a difference when used would be appreciated.	**Australia**
Generally speaking, Canada agrees with the proposals put forward in each Question to EWG members. Also, waiting on changes to other related/referenced CODEX documents would be best prior to making the contingent changes required for this guideline.	**Canada**
Ecuador agradece el haber sido considerado para poder aportar con su criterio técnico en la construcción de la referida norma alimentaria; en tal virtud y una vez revisado el proyecto de norma propuesto, informamos que no se ha encontrado objeción u observación a dicho proyecto, el mismo se ajusta correctamente a los criterios y directrices de inocuidad y seguridad alimentaria; sin embargo, nos permitimos realizar la siguiente sugerencia respecto a detección y diagnóstico: Para la identificación y caracterización de brotes de Vibrio, es indispensable que los países cuenten con métodos estandarizados para diagnóstico molecular por qPCR, capacidad instalada para cultivar a la bacteria, y para secuenciación genómica. Esto permitirá identificar y caracterizar los brotes de manera oportuna, llegando a determinar el serotipo, cambios genéticos, filogenética, filogeografía y filodinámica.	**Ecuador**
The European Union and its Member States (EUMS) would like to thank and congratulate Japan and Chile with the proposed revision of the Guidelines on the application of the General Principles of Food Hygiene to the Control of Vibrio Species in Seafood. The EUMS generally support the draft, subject to the considerations of the comments made below and the outcome of the discussions at CCFH54. The EUMS would like to indicate that they are in favour of a full structural and technical revision to ensure a complete alignment of this draft before adoption with the revised General Principles of Food Hygiene (see agenda item 9 of CCFH54). The EUMS generally agree with the proposed replies to the questions in the draft revision; however, some comments are made in part II.	**European Union**
Agree without comments	**Iraq**
Kenya appreciates the work done by the Electronic Working Group chaired by Japan and co-chaired by Chile. Whereas Kenya supports the editorial amendments as well as the technical review of the document Kenya proposes the following comments as captured in various specific Sections.	**Kenya**
In general we support the conclusions of the working group and find that the changes improve the guideline, however we have submitted some further improvements.	**Norway**

The Philippines supports the Proposed Draft Revised Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic Vibrio Species in Seafood as presented in Appendix I and we support its progression through the Codex Step Process with some minor specific comments.	**Philippines**
Zambia supports the development of these guidelines as the country imports sea food and the guidelines will ensure safety of the consumers	**Zambia**
Only the English version was reviewed and one technical comment made. Many editorial comments were made about font size and repeated numbers.	**ICUMSA**

SPECIFIC COMMENTS

INTRODUCTION	
INTRODUCTION INTRODUCTION: The EUMS acknowledge the paramount importance of a scientific basis to ensure risk-based control measures. However, the EUMS are wondering if such extended introduction is needed providing all scientific background. This is very unusual in guidelines on control measures and this background is largely provided by the JEMRA reports referred to in the draft. The EUMS consider that the introduction could be substantially reduced and replaced by references to the JEMRA reports.	**European Union**
Paragraph 1	
~~During the last few years~~ There has been an increase in reported outbreaks in some areas and cases of foodborne disease attributed to pathogenic *Vibrio* species. As a result, there have been several instances where the presence of pathogenic *Vibrio* spp. in seafood has led to a disruption in international trade. This has been particularly evident with *Vibrio parahaemolyticus* where there has been a series of pandemic outbreaks due to the consumption of seafood, and its emergence has been observed in regions of the world where it was previously unreported. A number of *Vibrio* species are increasingly being recognized as potential human pathogens. The food safety concerns associated with these microorganisms have led to the need for specific guidance on potential risk management strategies for their control. These risk management strategies need to be developed and implemented based on the specific harvest area site characteristics such as water and ambient temperatures, salinity and water sources flowing into a harvest area. The ingestion of a large number of viable cells was previously thought to be needed for pathogenic Vibrio spp. to survive the acidic environment of the stomach and establish an infection in the gastrointestinal tract. With the emergence of highly pathogenic strains, there is now recognition that the dose-response may be much lower depending on the individual strains and virulence profiles. Ensure Vibrio and other microorganisms are italicized throughout the document. Suggest using wording proposed in paragraph 5: It was previously thought that the ingestion of a large number of cells was needed for pathogenic Vibrio spp. to transition through the stomach and establish an infection.	**Canada**
~~During the last few years~~ There has been an increase in reported outbreaks in some areas and cases of foodborne disease attributed to pathogenic *Vibrio* species. As a result, there have been several instances where the presence of pathogenic *Vibrio* spp. in seafood has led to a disruption in international trade. This has been particularly evident with *Vibrio parahaemolyticus* where there has been a series of pandemic outbreaks due to the consumption of seafood, and its emergence has been observed in regions of the world where it was previously unreported. A number of *Vibrio* species are increasingly being recognized as potential human pathogens. The food safety concerns	**New Zealand**

associated with these microorganisms have led to the need for specific guidance on potential risk management strategies for their control. These risk management strategies need to be developed and implemented based on the specific harvest area site characteristics such as water and ambient temperatures, salinity and water sources flowing into a harvest area. The ingestion of a large number of viable cells was previously thought to be needed for pathogenic Vibrio spp. to survive the acidic environment of the stomach and establish an infection in the gastrointestinal tract. With the emergence of highly pathogenic strains, there is now recognition that the dose-response may be much lower depending on the individual strains and virulence profiles. We suggest that more specifics need to be given to assist with how it is spreading. Was it really pandemic outbreaks? Or was it outbreaks caused by a pandemic strain? They are not the same thing. Can this be more generic? Suggest that this paragraph should go later and in a different section. It is too specific to be included in the introduction.	
~~During the last few years~~ There has been an increase in reported outbreaks in some areas and cases of foodborne disease attributed to pathogenic *Vibrio* species. As a result, there have been several instances where the presence of pathogenic *Vibrio* spp. in seafood has led to a disruption in international trade. This has been particularly evident with *Vibrio parahaemolyticus* where ~~there has been~~ a series of pandemic outbreaks occurred due to the consumption of seafood, and its emergence has been observed in regions of the world where it was previously unreported. A number of *Vibrio* species are increasingly being recognized as potential human pathogens. The food safety concerns associated with these microorganisms have led to the need for specific guidance on potential risk management strategies for their control. These risk management strategies need to be developed and implemented based on the specific harvest area site characteristics such as water and ambient temperatures, salinity and water sources flowing into a harvest area. The ingestion of a large number of viable cells was previously thought to be needed for pathogenic Vibrio spp. to survive the acidic environment of the stomach and establish an infection in the gastrointestinal tract. With the emergence of highly pathogenic strains, there is now recognition that the dose-response may be much lower depending on the individual strains and virulence profiles. The Philippines proposed the editorial revision of the sentence as it was noted the redundant use of “this has been” and “there has been” in the sentence.	**Philippines**
Question to EWG members 1	
Chairs consider at least eleven species pathogenic to humans, i.e., 1) *Vibrio alginolyticus*, 2) *Vibrio cholerae* O1, 3) *Vibrio cholerae* non O1,4) *Vibrio fluvialis,* 5) *Vibrio furnissii*, 6) *Vibrio hollisae*, 7) *Vibrio metschnikovii*, 8) *Vibrio parahaemolyticus*, 9) *Vibrio vulnificus*, 10) *Vibrio carchariae*,11) *Vibrio cincinnatiensis.* Nine of which can cause food-borne illness. We consider that, among the list above, 10) *Vibrio carchariae*, and 11) *Vibrio cincinnatiensis* do not cause GI infection, therefore they do not cause foodborne illness and should not be included in the new draft. Is it ok to just include Vibrio species from number 1 to 9? We are not sure if V. albensis is included in the V. cholerae non O1 group or does it need to be listed separately, as we have reported cases of V. albensis in Canada.	**Canada**
De acuerdo con incluir solo las 9 especies, según lo revisado en la literatura, la especie 10 Vibrio carchariae: Patógeno de tiburones, ha sido relacionado con infecciones extraintestinales en el hombre, particularmente de heridas por mordedura de tiburón. (http://revistaaquatic.com/ojs/index.php/aquatic/article/viewFile/15/9) y la especie 11 Vibrio cincinnatiensis: Los alimentos marinos crudos y	**Colombia**

los alimentos marinos marinados sin calor representan factores potenciales de riesgo por la especie V. cincinnatiensis para el desarrollo de septicemia primaria (https://biblat.unam.mx/hevila/Cienciaymar/2014/no52/1.pdf).	
Chairs consider at least eleven species pathogenic to humans, i.e., 1) *Vibrio alginolyticus*, 2) *Vibrio cholerae* O1, 3) *Vibrio cholerae* non O1,4) *Vibrio fluvialis,* 5) *Vibrio furnissii*, 6) *Vibrio hollisae*, 7) *Vibrio metschnikovii*, 8) *Vibrio parahaemolyticus*, 9) *Vibrio vulnificus*, 10) *Vibrio carchariae*,11) *Vibrio cincinnatiensis.* Nine of which can cause food-borne illness. We consider that, among the list above, 10) *Vibrio carchariae*, and 11) *Vibrio cincinnatiensis* do not cause GI infection, therefore they do not cause foodborne illness and should not be included in the new draft. Is it ok to just include Vibrio species from number 1 to 9? Change: Vibrio cholerae O1, O139 Vibrio cholerae non O1, non O139 Reason: Can there be consideration of serotype O139	**New Zealand**
Most members agreed to include nine *Vibrio* species that cause food-borne illness in this guideline. Some members suggested they should be listed in the order with the three major pathogenic species first. One member suggested that *Vibrio cholerae* could be defined as meaning the choleragenic and non-choleragenic strains that cause foodborne illness in the context of this document. Some members suggested that *V. mimicus* should be added or that *V. carchariae* and *V. cincinnatiensis* could be indicated as a cause of GI infection. Agree, and question: should we distinguish between cholera infections (caused by V. cholerae O1 O139) and vibriosis, infections caused by all other Vibrio species (including cholerae non O1 non O139)?	**New Zealand**
Uruguay esta de acuerdo con la decisión de la presidencia de incluir las 10 especies con las 3 principales en 1er lugar	**Uruguay**
Question to EWG members 2	
Una vez revisada alguna literatura: FUTURE MICROBIOLOGY VOL. 18, NO. 6 Pathogenic mechanism of Vibrio vulnificus infection Published Online:9 May 2023https://doi.org/10.2217/fmb-2022-0243 https://www.futuremedicine.com/doi/abs/10.2217/fmb-2022-0243?journalCode=fmb Se está de acuerdo con lo expuesto en la segunda frase del párrafo 4.	**Colombia**
Agree with Chair	**New Zealand**
Las presidencias propusieron mantener la afirmación de que no existe una explicación clara de los mecanismos patógenos de *V. vulnificus*. Las presidencias también propusieron que se recomiende aplicar medidas de mitigación de riesgo, dando por sentado que todas las cepas de *V. vulnificus* son potencialmente virulentas. Uruguay coincide con esta posición.	**Uruguay**
Question to EWG members 3	
De acuerdo, las especies con mayor patogenicidad corresponden a V. parahaemolyticus, V. vulnificus, y V. cholerae según el CDC: https://www.cfsph.iastate.edu/Factsheets/es/vibriosis-in-shrimp-es.pdf y https://www.cdc.gov/vibrio/es/healthcare.html#:~:text=M%C3%A1s%20de%2020%20especies%20de,Vibrio%20vulnificus%20y%20Vibrio%20alginolyticus.	**Colombia**
Agree with proposal	**New Zealand**

In this draft, Chairs believe that *V. parahaemolyticus*, *V. vulnificus*, and *V. cholerae* are the major pathogenic species of Vibrio. Do you agree to maintain calling these 3 species as the "major pathogenic" in the new draft? Distinction cholera/non-cholera	
Chairs proposed to maintain the statement that *V. parahaemolyticus*, *V. vulnificus* and *V. cholerae* are the "major pathogenic" strains, since these three species are recognized as the major pathogen of the Vibrio spp. and cause either the most illness and/or the severe health outcomes. UK is aware of data from the US that suggests that there are other species (v. rare) that also cause foodborne disease which may also be of note to include in this list - V. metocus, V. ponticus and V. harveyii.	**United Kingdom**
Las presidencias propusieron mantener la afirmación de que las cepas de V. parahaemolyticus, V. vulnificus y V. cholerae son las "principales especies patógenas", ya que estas tres especies están ampliamente reconocidas como las principales especies patógenas de Vibrio spp. y causan la mayoría de las enfermedades, o bien consecuencias graves para la salud. Uruguay está de acuerdo con la propuesta de las presidencias	**Uruguay**
Paragraph 2	
The genus *Vibrio* contains at least ~~eleven~~twelve species pathogenic to humans, ~~nine~~ten of which can cause food-borne illness. The majority of food-borne ~~illness is~~ illnesses are caused by *V. parahaemolyticus*, choleragenic *Vibrio cholerae* (O1, O139), or *Vibrio vulnificus*. *V. parahaemolyticus* and *V. cholerae* are mainly isolated from gastroenteritis cases that are attributable to the consumption of contaminated food (both species) or from the intake of contaminated water (*V. cholerae*). In contrast, *V. vulnificus* is primarily reported from extraintestinal infections (e.g. septicaemia, wounds, etc.) and primary septicaemia due to *V. vulnificus* infection is often associated with consumption of seafood. *V. alginoliticus*, non-choleragenic *V. ~~cholera~~cholerae*, *V. ~~fluviaris~~fluvialis*, *V. furnissii*, *V. hollisae* (re-classified as *Grimontia hollisae*), *V. metschnikovii* and *V. mimicus* can also cause food-borne illness. Modify Vibrio to V. where necessary throughout the document. Typos? Believe it is V. cholerae and V. fluvialis.	**Canada**
The genus *Vibrio* contains at least ~~eleven~~twelve species pathogenic to humans, ~~nine~~ten of which can cause food-borne illness. The majority of food-borne illness is caused by *V. parahaemolyticus*, choleragenic *Vibrio cholerae* (O1, O139), or *Vibrio vulnificus*. *V. parahaemolyticus* and *V. cholerae* are mainly isolated from gastroenteritis cases that are attributable to the consumption of contaminated food (both species) or from the intake of contaminated water (*V. cholerae*). In contrast, *V. vulnificus* is primarily reported from extraintestinal infections (e.g. septicaemia, wounds, etc.) and primary septicaemia due to *V. vulnificus* infection is often associated with consumption of seafood. It should be noted that *V. alginoliticus*, non-choleragenic *V. cholera* (non O1/non O139 strains possessing the ctx gene for cholera toxin), *V. fluviaris*, *V. furnissii*, *V. hollisae* (re-classified as *Grimontia hollisae*), *V. metschnikovii* and *V. mimicus* can also cause food-borne illness. The EUMS suggest to modify the last sentence as follows: "it should be noted that V. alginoliticus, non-choleragenic V. cholera cholerae (non O1/non O139 strains possessing the ctx gene for cholera toxin), V. fluviaris, V. furnissii, V. hollisae (re-classified as Grimontia hollisae), V. metschnikovii and V. mimicus can also cause food-borne illness." Rationale: any relevant information regarding these species be explicitly included at this stage.	**European Union**

The genus *Vibrio* contains at least ~~eleven~~twelve species pathogenic to humans, ~~nine~~ten of which can cause food-borne illness. The majority of food-borne illness is caused by *V. parahaemolyticus*, choleragenic *Vibrio cholerae* (O1, O139), or *Vibrio vulnificus*. *V. parahaemolyticus* and *V. cholerae* are mainly isolated from gastroenteritis cases that are attributable to the consumption of contaminated food (both species) or from the intake of contaminated water (*V. cholerae*). In contrast, *V. vulnificus* is primarily reported from extraintestinal infections (e.g. septicaemia, wounds, etc.) and primary septicaemia due to *V. vulnificus* infection is often associated with consumption of seafood. *V. alginoliticus*, non-choleragenic *V. cholera*, *V. fluviaris*, *V. furnissii*, *V. hollisae* (re-classified as *Grimontia hollisae*), *V. metschnikovii* and *V. mimicus* can also cause food-borne illness. Change: include word "..eg. Septicaemia, infected wounds.." V. cholerae Editing	**New Zealand**
The genus *Vibrio* contains at least ~~eleven~~twelve species pathogenic to humans, ~~nine~~ten of which can cause food-borne illness. The majority of food-borne illness is caused by *V. parahaemolyticus*, choleragenic *Vibrio cholerae* (O1, O139), or *Vibrio vulnificus*. *V. parahaemolyticus* and *V. cholerae* are mainly isolated from gastroenteritis cases that are attributable to the consumption of contaminated food (both species) or from the intake of contaminated water (*V. cholerae*). In contrast, *V. vulnificus* is primarily reported from extraintestinal infections (e.g. septicaemia, wounds, etc.) and primary septicaemia due to *V. vulnificus* infection is often associated with consumption of seafood. *V. alginoliticus*, non-choleragenic *V. cholera*, *V. fluviaris*, *V. furnissii*, *V. hollisae* (re-classified as *Grimontia hollisae*), *V. metschnikovii* and *V. mimicus* can also cause food-borne illness. The genus Vibrio contains at least eleventwelve species pathogenic to humans, TEN	**United Arab Emirates**
El género Vibrio contiene al menos 12 especies patógenas para los seres humanos; 10 de estas pueden causar enfermedades que se transmiten a través de la ingesta de alimentos contaminados. La mayoría de las enfermedades transmitidas por alimentos son causadas por *V. parahaemolyticus*, *Vibrio cholerae* toxigénico (O1, O139) o *Vibrio vulnificus*. *V. parahaemolyticus* y *V. cholerae* ~~que~~ única o principalmente han sido aislados en casos de gastroenteritis que son atribuibles al consumo de alimentos contaminados (ambas especies) o ~~al~~ a la ingesta de agua contaminada (*V. cholerae*). En contraste, *V. vulnificus* se reporta principalmente como el causante de infecciones no intestinales (como septicemias, heridas externas, etc.). Sin embargo, también es el principal causante de septicemias a menudo asociadas con el consumo de alimentos de origen marino. *V. alginoliticus*, *V. cholerae* no coleragénico, *V. fluviaris*, *V. furnissii*, *V. hollisae* (reclasificado como *Grimontia hollisae*), *V. metschnikovii* y *V. mimicus* también pueden causar enfermedades transmitidas por los alimentos. Uruguay considera necesario que se nombren las 12 especies: : 1) Vibrio alginolyticus, 2) Vibrio cholerae O1, 3) Vibrio cholerae no O1, 4) Vibrio fluvialis, 5) Vibrio furnissii, 6) Vibrio hollisae, 7) Vibrio metschnikovii, 8) Vibrio parahaemolyticus, 9) Vibrio vulnificus, 10) Vibrio carchariae y 11) Vibrio cincinnatiensis y 12)V. mimicus Uruguay considera que sobra esta palabra ("que")	**Uruguay**
Paragraph 3	
Vibriosis is a potentially serious illness caused by a group of bacteria called Vibrio. Infection with Vibrio bacteria can cause two types of illness: vibriosis and cholera. Although many species of Vibrio exist, most vibriosis (non-cholera) cases are caused by Vibrio vulnificus or Vibrio parahaemolyticus. In tropical and temperate regions, these species of *Vibrio* occur naturally in marine, coastal and estuarine (brackish) environments and are most abundant in estuaries. Pathogenic *Vibrio* spp., in particular *V. cholerae*, can also be recovered from freshwater	**United Arab Emirates**

reaches of estuaries, where it can ~~also~~ be introduced by faecal contamination. *V. cholerae*, unlike most other *Vibrio* species, can survive in freshwater environments.	
Paragraph 4	
It is now possible to differentiate environmental strains of *V. cholerae* and *V. parahaemolyticus* between virulent and avirulent strains based on their ability to produce ~~their~~ major virulence factors. The pathogenic mechanisms of *V. vulnificus* have not been clearly~~ elucidated~~ explained, and its virulence appears to be multi-factorial and is not well understood, and therefore~~ all strains are considered virulent~~ it is recommended to implement measures to mitigate the risk assuming that all strains ~~are potentially virulent~~need to be handled as pathogenic. The EUMS consider that there is a contradiction between the recommendation to mitigate the risk assuming that all strains are potentially virulent and the statement that it is possible to differentiate between virulent and avirulent environmental strains of V. cholera and V. parahaemolyticus, even when if the mechanism of pathogenicity is not yet completely understood. The EUMS suggest modifying the second sentence as follows: “The pathogenic mechanisms of V. vulnificus have not been clearly explained, and its virulence appears to be multi-factorial and is not well understood, and therefore it is recommended to implement measures to mitigate the risk assuming that all strains need to be handled as pathogenic”.	**European Union**
It is now possible to differentiate environmental strains of *V. cholerae* and *V. parahaemolyticus* between virulent and avirulent strains based on their ability to produce ~~their~~ major virulence factors. The pathogenic mechanisms of *V. vulnificus* have not been clearly~~ elucidated~~ explained, and its virulence appears to be multi-factorial and is not well understood, and therefore~~ all strains are considered virulent~~ it is recommended to implement measures to mitigate the risk assuming that all strains are potentially virulent. Why 'environmental' specifically? V. cholerae pathogenicity is also based on serotypes O	**New Zealand**
En la actualidad es posible diferenciar las cepas ambientales ~~virales~~ virulentas y no ~~virales~~ virulentas de *V. cholerae* y *V. parahaemolyticus* con base en su capacidad o incapacidad para producir ~~sus~~ factores virulentos más importantes. No se han podido ~~dilucidar~~ explicar claramente los mecanismos patógenos de *V. vulnificus*, y su virulencia parece ser multifactorial ~~multifacética~~ y no se comprende bien. Por consiguiente,~~ todas las cepas se consideran virulentas~~ se recomienda aplicar medidas de mitigación de riesgo dando por sentado que todas las cepas son potencialmente virulentas. Uruguay entiende que cebe decir "virulentas y no virulentas" en lugar de virales y no virales	**Uruguay**
Paragraph 5	
The following are important characteristics common to all *Vibrio* spp. *Vibrio* spp. are sensitive to low pH but can grow ~~well~~ at higher pHs, and thus infections caused by *Vibrio* spp. are frequently associated with low-acid foods. ~~In addition,~~ It was previously thought that the ingestion of a large number of~~ viable~~ cells ~~is~~ was needed for pathogenic *Vibrio* spp. to~~ survive the acidic environment of~~ transition through the stomach and establish an infection.~~ Cooking of food products readily inactivates Vibrio spp. even in highly contaminated products. Hygienic practices used with all food-borne pathogens will in general control the growth of pathogenic *Vibrio* spp.~~ However, new and highly pathogenic strains have emerged with a significantly lower infectious dose with 50% probability (ID_{50}). These strains also exhibited different growth characteristics compared to the *V. parahaemolyticus* strains used in the previous risk assessments[1]. It is unclear if this statement of new and highly pathogenic (virulent) strains is in reference to V. parahaemolyticus or other Vibrio species. If the statement applies to Vibrio sp. we suggest: However, new and highly pathogenic strains of Vibrio sp. have emerged…	**Canada**

Las siguientes son características comunes importantes de todas las especies de Vibrio: todas son sensibles a pH bajos, pero ~~crecen~~ pueden crecer ~~bien~~ en pH más altos por lo que las infecciones causadas por éstas son frecuentemente asociadas con alimentos poco ácidos. ~~Además,~~ Anteriormente se pensaba que era ~~es~~ necesaria la ingestión de una gran cantidad de células ~~viables~~ de una especie de *Vibrio* patógena, ~~para sobrevivir en el ambiente ácido del estómago~~ para que pasaran por el estómago y provocaran ~~y provocar~~ una infección. ~~Por medio de la cocción adecuada de los productos alimenticios se inactiva rápidamente a estas especies aún en productos con un gran nivel de contaminación. Las prácticas de higiene usadas con todos los patógenos transmitidos por alimentos controlarán en general el crecimiento de las especies patógenas de Vibrio.~~ Sin embargo, han aparecido cepas nuevas y altamente patógenas con una ~~dosis infecciosa significativamente~~ ID 50 menor ~~y una probabilidad del 50 % (ID_{50}).~~ Estas cepas presentaban asimismo características de crecimiento diferentes a las de las cepas de *V. parahaemolyticus* utilizadas en las anteriores evaluaciones del riesgo[1].	**Uruguay**
Paragraph 6	
Para 6 There are, however, characteristics specific to each of the three major pathogenic species of *Vibrio* responsible for the majority of human infections, and therefore of country's highest public health ~~interest~~concern, that require attention as described below.	**Japan**
Para 6 There are, however, characteristics specific to each of the three major pathogenic species of *Vibrio* responsible for the majority of human infections, and therefore of country's highest public health interest, that require attention as described below. Why "therefore of country's highest public health interest"?	**New Zealand**
Suggestion is not to mention all of these very deep information.	**United Arab Emirates**
Vibrio parahaemolyticus	
Vibrio parahaemolyticus Suggest bolding to improve readability.	**Canada**
Question to EWG members 4	
Se está de acuerdo con los ejemplos descritos. Adicionalmente se deja a consideración proponer extraer el siguiente párrafo: Según https://biblat.unam.mx/hevila/Cienciaymar/2014/no52/1.pdf Los alimentos marinos crudos, los alimentos marinos parcialmente cocidos con calor y los alimentos marinos completamente cocidos con calor representan factores potenciales de riesgo por la especie V. parahaemolyticus para el desarrollo de gastroenteritis aguda, infección de herida, infección de oído y septicemia secundaria;	**Colombia**
Happy with list, however, basically says all seafood. What is not included in this list?	**New Zealand**
Las presidencias propusieron mantener los ejemplos de alimentos de origen marino asociados con las enfermedades causadas por *V. parahaemolyticus* con una modificación de categoría. Uruguay concuerda con la propuesta	**Uruguay**
Paragraph 7	
V. parahaemolyticus is considered to be part of the autochthonous microflora in the estuarine and coastal environments in tropical to temperate zones. Seawater temperature has been reported as one of the principal environmental factors increasing the abundance of *V. parahaemolyticus* in many areas of the world. ~~The~~ In temperate regions with low and moderate temperatures, a positive ~~effect~~ correlation of	**Canada**

warming seawater ~~temperature in~~ temperatures (during spring and summer ~~of temperate zone~~ months) on the abundance of Vp has been observed. A positive correlation between temperature and Vibrio levels in tropical areas where there are high fluctuations, such as macro-tidal harbours and near tidal creeks, has also been reported. ~~*V. parahaemolyticus* has been observed in temperate regions with low and moderate temperatures. It is also found that positive correlation for temperature to Vibrio levels in tropical areas where there are high fluctuations, such as macro-tidal harbours and near tidal creeks.~~ While *V. parahaemolyticus* ~~typically~~ is typically undetectable in seawater at 10°C or lower, it can be cultured from sediments throughout the year at temperatures as low as 1°C. In temperate zones, the life cycle consists of a phase of survival in winter in sediments and a phase of release with the zooplankton when the temperature of the water increases up to 14 - 19 °C. *V. parahaemolyticus* is characterized by its rapid growth in the water under favourable conditions[2]. Suggest to adjust the following sentences to improve readability. If this alternate text is included, please ensure that the intent has not changed.	
V. parahaemolyticus is considered to be part of the autochthonous ~~microflora~~ microbiota in the estuarine and coastal environments in tropical to temperate zones. Seawater temperature has been reported as one of the principal environmental factors increasing the abundance of *V. parahaemolyticus* in many areas of the world. The positive effect of warming seawater temperature in spring and summer of temperate zone on the abundance of *V. parahaemolyticus* has been observed in temperate regions with low and moderate temperatures. It is also found that positive correlation for temperature to Vibrio parahaemolyticus levels in tropical areas where there are high fluctuations, such as macro-tidal harbours and near tidal creeks. While *V. parahaemolyticus* ~~typically~~ is typically undetectable in seawater at 10°C or lower, it can be cultured from sediments throughout the year at temperatures as low as 1°C. In temperate zones, the life cycle consists of a phase of survival in winter in sediments and a phase of release with the zooplankton when the temperature of the water increases up to 14 - 19 °C. *V. parahaemolyticus* is characterized by its rapid growth in the water under favourable conditions[2]. The correct term is microbiota. The reference shall clearly refer to V. parahaemolyticus	**European Union**
V. parahaemolyticus is considered to be part of the autochthonous microflora in the estuarine and coastal environments in tropical to temperate zones. Seawater temperature has been reported as one of the principal environmental factors increasing the abundance of *V. parahaemolyticus* in many areas of the world. The positive effect of warming seawater temperature in spring and summer of temperate zone on the abundance of *V. parahaemolyticus* has been observed in temperate regions with low and moderate temperatures. It is also found that positive correlation for temperature to Vibrio levels in tropical areas where there are high fluctuations, such as macro-tidal harbours and near tidal creeks. While *V. parahaemolyticus* ~~typically~~ is typically undetectable in seawater at 10°C or lower, it can be cultured from sediments throughout the year at temperatures as low as 1°C. In temperate zones, the life cycle consists of a phase of survival in winter in sediments and a phase of release with the zooplankton when the temperature of the water increases up to 14 - 19 °C. *V. parahaemolyticus* is characterized by its rapid growth in the water under favourable conditions[2]. Change: Reword - Increased levels of V. parahaemolyticus are correlated with warming seawater temperatures in spring and summer for temperate regions, and are observed in macro-tidal harbours and creeks with high fluctuation temperatures for tropical regions. Reason: Reword for clarity and brevity.	**New Zealand**
Paragraph 8	
8. The vast majority of strains isolated from patients with diarrhoea produce a thermostable direct hemolysin (TDH). ~~It has therefore been considered that pathogenic strains possess a *tdh* gene and produce TDH, and non-pathogenic strains lack the gene and the trait.~~ Additionally, strains that produce a TDH-related hemolysin (TRH) encoded by the *trh* gene should also be regarded as pathogenic. Although	**Canada**

detection of tdh- trh- strains among clinical strains has been the source of debate on the pathogenic roles of tdh and trh genes, and the mode of pathogenicity is not fully understood, these genes are still the most well defined markers of ~~pathogenicity~~virulence. Suggest changing pathogenicity to virulence as it seems more appropriate, strains carrying tdh or trh have the ability to produce more severe disease.	
8. La gran mayoría de las cepas aisladas a partir de pacientes con síntomas de diarrea producen una hemolisina directa termoestable (TDH). ~~Por ello se ha considerado que las cepas patógenas poseen un gen tdh por lo que son capaces de producir TDH, mas sin embargo las cepas no patógenas no cuentan con ese gen y por ende carecen de tal capacidad.~~ Además, las cepas que producen una hemolisina relacionada con TDH (TRH) codificada por el gen *trh* deberían también ser consideradas como patógenas. Aunque la detección de cepas tdh y trh entre las cepas clínicas ha generado debate en torno a las funciones patogénicas de los genes tdh y trh, y no se conoce totalmente el modo de patogenicidad, estos genes siguen siendo los marcadores de patogenicidad mejor definidos. Uruguay esta de acuerdo con el agregado "Aunque la detección de cepas tdh y trh entre las cepas clínicas ha generado debate en torno a las funciones patogénicas de los genes tdh y trh, y no se conoce totalmente el modo de patogenicidad, estos genes siguen siendo los marcadores de patogenicidad mejor definidos."	**Uruguay**
Paragraph 9	
~~8.~~9. Symptoms of *V. parahaemolyticus* infections include explosive ~~watery~~ diarrhoea (sometimes watery and bloody), nausea, vomiting, abdominal cramps and, less frequently, headache, fever and chills. Most cases are self-limiting, however, severe cases of gastroenteritis requiring hospitalization have been reported. ~~Virulent strains are seldom detected in the environment or in foods~~ A low proportion of environmental or food strains, including seafoods, contain known virulence markers, while ~~they~~virulent strains are detected as major strains from faeces of infected patients. Given this limitation in testing, non detection of virulent strains in the environment or in food does not mean there is no risk to the consumer. Remove word 'explosive' Reason: Explosive is unnecessary. Include information about impact on the value of setting up monitoring programmes. May be better in Annex.	**New Zealand**
~~8.~~9. Symptoms of *V. parahaemolyticus* infections include explosive ~~watery~~ diarrhoea (sometimes watery and bloody), nausea, vomiting, abdominal cramps and, less frequently, headache, fever and chills. Most cases are self-limiting, however, severe cases of gastroenteritis requiring hospitalization have been reported. ~~Virulent strains are seldom detected in the environment or in foods~~ A low proportion of environmental or food strains, including seafoods, contain known virulence markers, while ~~they~~virulent strains are detected as major strains from faeces of infected patients. Given this limitation in testing, non detection of virulent strains in the environment or in food does not mean there is no risk to the consumer. A comment on detection bias should be added here: clinical strains possess these virulence factors because they have been isolated from cases, therefore from people exhibiting symptoms caused obviously by these strains, but environmental strains are detected by chance, one shellfish could be harbouring virulent strains and another shellfish next to it not. Zones of harvest and harvest volumes can be quite large, diluting the possibility of obtaining virulent strains. Besides, on a culture plate of TCBS, the selective medium most used, there is no mean to distinguish virulent Vp colonies from avirulent colonies, and both can co-exist in a shellfish and on the plate. (there also could be some competition between strains).	**New Zealand**

Suggestion is summarize this paragraph to: "strains that carry the gene for the thermostable direct hemolysin (tdh) and the thermostable-related hemolysin (trh) are considered to be pathogenic. Although detection of (tdh) and (trh) genes among clinical strains has been the source of debate on the pathogenic roles of these genes, the mode of pathogenicity is not fully understood, and these genes are still the most well defined markers of pathogenicity.	**United Arab Emirates**
Paragraph 10	
~~9.~~10. ~~*V. parahaemolyticus* was first identified as a foodborne pathogen in Japan in the 1950s. By the late 1960s and early 1970s *V. parahaemolyticus* was recognized as a cause of diarrhoeal disease worldwide. A new *V. parahaemolyticus* clone of O3:K6 serotype emerged in Calcutta in 1996. This clone, including its serovariants, has spread throughout Asia and to the USA, elevating the status of the spread of *V. parahaemolyticus* infection to pandemic. In Asia, *V. parahaemolyticus* is a common cause of foodborne disease.~~ In general, the outbreaks are small in scale, involving fewer than 10 cases, but can occur ~~frequently~~ frequently, especially in the months with high water temperature. ~~This pandemic *V. parahaemolyticus* has now spread to at least 5 continents. There is a suggestion that ballast discharge may be a major mechanism for global spread of pandemic *V. parahaemolyticus*, but a possibility of export/import seafood-mediated international spread cannot be ruled out.~~ While the pandemic clone ST3 has now spread, other pandemic variants have emerged, such as ST36, ST43 and ~~ST636~~ ST636, and have spread rapidly and globally. In addition, most countries have seen an increase in *V. parahaemolyticus* cases associated with a large genetic diversity of *V. parahaemolyticus* strains. Some genetic modifications noted in the pandemic strains include altered nucleotide bases in the toxR ~~gene~~ gene, an open reading frame (ORF8) in a lysogenic filamentous phage and gene sequences in 16-kb or 23-kb chromosomal inserts specific to the pandemic clone[3]. Addition of a comma.	**Canada**
~~9.~~10. ~~*V. parahaemolyticus* was first identified as a foodborne pathogen in Japan in the 1950s. By the late 1960s and early 1970s *V. parahaemolyticus* was recognized as a cause of diarrhoeal disease worldwide. A new *V. parahaemolyticus* clone of O3:K6 serotype emerged in Calcutta in 1996. This clone, including its serovariants, has spread throughout Asia and to the USA, elevating the status of the spread of *V. parahaemolyticus* infection to pandemic. In Asia, *V. parahaemolyticus* is a common cause of foodborne disease.~~ In general, the outbreaks are small in scale, involving fewer than 10 cases, but can occur frequently especially in the months with high water temperature. ~~This pandemic *V. parahaemolyticus* has now spread to at least 5 continents. There is a suggestion that ballast discharge may be a major mechanism for global spread of pandemic *V. parahaemolyticus*, but a possibility of export/import seafood-mediated international spread cannot be ruled out.~~ While the pandemic clone ST3 has now spread, other pandemic variants have emerged, such as ST36, ST43 and ST636 and have spread rapidly and globally. In addition, ~~most~~ some countries have seen an increase in *V. parahaemolyticus* cases associated with a large genetic diversity of *V. parahaemolyticus* strains. Some genetic modifications noted in the pandemic strains include altered nucleotide bases in the toxR gene an open reading frame (ORF8) in a lysogenic filamentous phage and gene sequences in 16-kb or 23-kb chromosomal inserts specific to the pandemic clone[3]. There is no evidence that this applies to most countries of the world.	**European Union**
~~9.~~10. ~~*V. parahaemolyticus* was first identified as a foodborne pathogen in Japan in the 1950s. By the late 1960s and early 1970s *V. parahaemolyticus* was recognized as a cause of diarrhoeal disease worldwide. A new *V. parahaemolyticus* clone of O3:K6 serotype emerged in Calcutta in 1996. This clone, including its serovariants, has spread throughout Asia and to the USA, elevating the status of the spread of *V. parahaemolyticus* infection to pandemic. In Asia, *V. parahaemolyticus* is a common cause of foodborne disease.~~ In general, the outbreaks are small in scale, involving fewer than 10 cases, but can occur frequently especially in the months with high water temperature. ~~This pandemic *V. parahaemolyticus* has now spread to at least 5 continents. There is a suggestion that ballast discharge may be a major mechanism for global spread of pandemic *V. parahaemolyticus*, but a possibility of export/import seafood-mediated international spread cannot be ruled out.~~ While	**New Zealand**

the pandemic clone ST3 has now spread, other pandemic variants have emerged, such as ST36, ST43 and ST636 and have spread rapidly and globally. In addition, most countries have seen an increase in *V. parahaemolyticus* cases associated with a large genetic diversity of *V. parahaemolyticus* strains. Some genetic modifications noted in the pandemic strains include altered nucleotide bases in the toxR gene an open reading frame (ORF8) in a lysogenic filamentous phage and gene sequences in 16-kb or 23-kb chromosomal inserts specific to the pandemic clone[3]. In general what is the reason for the outbreaks being small scale? It would be useful to understand why the outbreaks are small in scale. Change: Include word "...spread worldwide." Reason: Worldwide or should indicate specific countries	
9.10. El *V. parahaemolyticus* fue identificado por primera vez como un patógeno transmitido por alimentos en los años 50 en Japón. A finales de los años 60 y principios de los 70 fue reconocido como el causante de enfermedades diarreicas en todo el mundo. En 1996 en Calcuta, India, surgió el clon serotipo 03:K6; el cual incluye varias serovariantes que se han diseminado por toda Asia y en EE.UU., elevando el nivel de diseminación de la infección a una pandemia. En Asia, este vibrio es la causa común de enfermedades transmitidas por alimentos. En general los brotes surgen en pequeña escala, involucrando menos de 10 casos, pero ocurren pueden ocurrir con frecuencia, sobre todo en meses con alta temperatura del agua. La pandemia provocada por el *V. parahaemolyticus* se ha extendido al menos en 5 continentes. Se ha sugerido que las descargas de aguas negras en altamar, pueden ser un mecanismo importante para la diseminación global de esta pandemia, mas sin embargo no se puede descartar la posibilidad de que la exportación e importación de alimentos de origen marino también estén involucrados en tal transmisión internacional. Mientras que el clon pandémico ST3 ya se ha extendido, han surgido otras variantes pandémicas, como ST36, ST43 y ST636, que se han propagado de forma rápida a escala mundial. Además, en la mayoría de los países se ha observado un aumento de los casos de *V. parahaemolyticus* asociado a una gran diversidad genética de cepas de *V. parahaemolyticus*. Algunas modificaciones genéticas observadas en las cepas pandémicas incluyen bases nucleotídicas alteradas en el gen toxR, un marco abierto de lectura (ORF8) en un fago filamentoso lisogénico y secuencias genéticas en inserciones cromosómicas de 16-kb o 23-kb específicas del clon pandémico[3]. Uruguay entiende que en el pie de pagina, solo va la referencia Nº 2, el resto se debe eliminar	**Uruguay**
Paragraph 11	
10.11. From the point of controlling seafood-borne *V. parahaemolyticus* illnesses, harvest is probably the most critical stage, since it is from this point onwards that individuals can actually implement measures to control *V. parahaemolyticus* can be implemented. Additionally, the pre-harvest control for aquaculture is also important for managing the risks. It is also important to consider control measures at post-harvest, during processing, wet storage and storage, associated transport and packaging operations, and during retail, in particular setting . Setting appropriate time-temperature requirements of these control measuresmeasures is important, especially time-temperature controls on post-harvest refrigeration[4].	**Canada**
10.11. From the point of controlling seafood-borne *V. parahaemolyticus* illnesses, harvest is probably the most critical stage, since it is from this point onwards that individuals can actually implement measures to control *V. parahaemolyticus* can be implemented. Additionally, the pre-harvest control for aquaculture is also important for managing the risks. It is also important to consider control measures at post-harvest, during processing, wet storage and associated transport and packaging operations, and during retail, in particular setting appropriate time-temperature requirements of these control measures, especially time-temperature controls on post-harvest refrigeration[4]. Proposed change: In relation to seafood-borne.....	**New Zealand**

Change: Reword "...Harvest and post-harvest are the most critical stages,..." Reason: Post harvest is a critical stage, as temperature abuse for example can take place if proper cold chain is not maintained	
Paragraph 12	
~~11.~~12. Foods associated with illnesses due to consumption of *V. parahaemolyticus* include for example ~~crayfish, lobster, shrimp, fish-balls, boiled surf clams, jack-knife clams, fried mackerel, mussel, tuna, seafood salad, raw oysters, clams, steamed/boiled crabmeat, scallops, squid, sea urchin, mysids, and sardines~~ finfish (such as mackerel, tuna), crustaceans (such as prawns, crabmeat), bivalve molluscs (such as oysters, scallops), cephalopods (such as squid), echinoderms (such as sea urchin) and seaweed (such as sea grapes). These products include ~~both raw and~~ raw, partially treated[5] and ~~thoroughly~~ treated seafood products that have been ~~substantially~~ cross-~~re~~contaminated ~~through contaminated~~ by utensils, water and ice, hands, ~~coming into contact with~~ uncooked contaminated seafood, etc. Proposed modifications to improve readability.	**Canada**
Footnote 5: “treated” means any vibriocidal treatment (e.g., heat treatment, high pressure). Refer to Section 2.3 (definition for “partially treated”). The EUMS suggest including this definition in point 2.3 of definitions, instead of in a footnote. In addition, it may be useful to specify which types of heat treatments would be included.	**European Union**
Kenya supports the adoption of the amendments made in Para 12 but also accepts the deletion of ‘thoroughly treated’ but proposes replacement with ‘fully treated’ in the last statement of the para Justification: To define the extent of the treatment.	**Kenya**
~~11.~~12. Foods associated with illnesses due to consumption of *V. parahaemolyticus* include for example ~~crayfish, lobster, shrimp, fish-balls, boiled surf clams, jack-knife clams, fried mackerel, mussel, tuna, seafood salad, raw oysters, clams, steamed/boiled crabmeat, scallops, squid, sea urchin, mysids, and sardines~~ finfish (such as mackerel, tuna), crustaceans (such as prawns, crabmeat), bivalve molluscs (such as oysters, scallops), cephalopods (such as squid), echinoderms (such as sea urchin) and seaweed (such as sea grapes). These products include both raw and partially treated[5] and ~~thoroughly~~ treated seafood products that have been substantially ~~re~~contaminated through contaminated utensils, water and ice, hands, coming into contact with uncooked contaminated seafood, etc. Proposed change: These products include both raw and partially treated, and also thoroughly treated seafood products that have been recontaminated, for example through contaminated utensils, water and ice, hands, coming into contact with uncooked contaminated seafood, etc. Reason: Improve clarity	**New Zealand**
Vibrio cholerae	
Vibrio cholerae Suggest bolding to improve readability.	**Canada**
Paragraph 13	
~~*12.*~~*13.* *V. cholerae* is indigenous to fresh and brackish water environments in tropical, subtropical and temperate areas worldwide. Over 200 O serogroups have been ~~established~~ identified for *V. cholerae*. Strains belonging to O1 and O139 serotypes generally possess the *ctx* gene, ~~and produce~~ which encodes the cholera toxin (CT) and are responsible for epidemic cholera. Epidemic cholera is confined mainly to developing countries with warm climates. ~~Cholera is exclusively a human disease and human faeces from infected individuals are the primary source of infection in cholera epidemics.~~ Contamination of food production environments (including aquaculture ponds)	**Canada**

by human faeces can indirectly introduce choleragenic *V.cholerae* into foods. The concentration of free-living choleragenic *V. cholerae* in the natural aquatic environment is low, but *V. cholerae* is known to attach and multiply on zooplankton such as copepods. Is this terminology different then autochthonous from paragraph 7? If not, suggest to use the same term.	
~~12.~~13. *V. cholerae* is indigenous to fresh and brackish water environments in tropical, subtropical and temperate areas worldwide. Over 200 O serogroups have been ~~established~~ identified for *V. cholerae*. Strains belonging to O1 and O139 serotypes generally possess the *ctx* gene, ~~and produce~~ which encodes the cholera toxin (CT) and are responsible for epidemic cholera. Epidemic cholera is confined mainly to developing countries with warm climates. ~~Cholera is exclusively a human disease and human faeces from infected individuals are the primary source of infection in cholera epidemics.~~ Contamination of food production environments (including aquaculture ponds) by human faeces can indirectly introduce choleragenic *V.cholerae* into foods. The concentration of free-living choleragenic *V. cholerae* in the natural aquatic environment is low, but *V. cholerae* is known to attach and multiply on zooplankton such as copepods. But imported cases associated with travel are also seen in developed countries Why indirectly? This is also true for other Vibrios, in particular Vp	**New Zealand**
~~12.~~13. *V. cholerae* is indigenous to fresh and brackish water environments in tropical, subtropical and temperate areas worldwide. Over 200 O serogroups have been ~~established~~ identified for *V. cholerae*. Strains belonging to O1 and O139 serotypes generally possess the *ctx* gene, ~~and produce~~ which encodes the cholera toxin (CT) and are responsible for epidemic cholera. Epidemic cholera is confined mainly to developing countries with warm climates. ~~Cholera is exclusively a human disease and human faeces from infected individuals are the primary source of infection in cholera epidemics.~~ Contamination of food production environments (including aquaculture ponds) by human faeces can indirectly introduce choleragenic *V.cholerae* into foods. The concentration of free-living choleragenic *V. cholerae* in the natural aquatic environment is low, but *V. cholerae* is known to attach and multiply on zooplankton such as copepods. Please add : Cholera is an extremely virulent disease transmitted through the ingestion of contaminated food or water.	**United Arab Emirates**
Paragraph 14	
~~13.~~14. Seven pandemics of cholera have been recorded since 1823. The first six pandemics were caused by the classical biotype strains, whereas the seventh ~~pandemic that~~ pandemic, which started in 1961 and ~~has lasted until now~~is still ongoing, is due to *V. cholerae* O1 biotype El Tor strains. Epidemic cholera can be ~~introduced from abroad~~ spread by infected travelers, imported foods and through the ballast water of cargo ships. Detection frequencies of choleragenic strains of *V. cholerae* from legally imported foods ~~were~~ are very low and ~~they~~ have seldom been implicated in cholera outbreaks. *V. cholerae* O139 has been responsible for ~~the~~ outbreaks of cholera ~~in the Bengal area~~ since 1992, ~~and this bacterium has spread to other parts of the world through travellers~~. The choleragenic strains of *V. cholerae* ~~that spread to different parts of the world~~ may persist, and some factors may trigger an epidemic in ~~the newly~~ new established ~~environment~~environments. Because of the removal of "Bangal area", you no longer have a comparative to the word "other parts"; suggest removing.	**Canada**
The EUMS propose the following change at the end of the paragraph: the sentence “The choleragenic strains of V. cholerae may persist, and some factors may trigger an epidemic in the newly established environment” shall describe which are the factors that may trigger an epidemic.	**European Union**

~~13.~~14. Seven pandemics of cholera have been recorded since 1823. The first six pandemics were caused by the classical biotype strains, whereas the seventh pandemic that started in 1961 and has lasted until now, is due to *V. cholerae* O1 biotype El Tor strains. Epidemic cholera can be ~~introduced from abroad~~ spread by infected travelers, imported foods and through the ballast water of cargo ships. Detection frequencies of choleragenic strains of *V. cholerae* from legally imported foods ~~were~~ are very low and ~~they~~ have seldom been implicated in cholera outbreaks. *V. cholerae* O139 has been responsible for the outbreaks of cholera ~~in the Bengal area~~ since 1992, and this bacterium has spread to other parts of the world ~~through travellers~~. The choleragenic strains of *V. cholerae* ~~that spread to different parts of the world~~ may persist, and some factors may trigger an epidemic in the newly established environment. Change: remove word “cargo” Comment: Do these sentences make sense if “Bengal area” is deleted? Examples of such factors would be helpful?	**New Zealand**
According to WHO reported that the number of cholera cases has continued to be high over the last few years. During 2022, 472 697 cases and 2349 deaths were reported to WHO from 44 countries	**United Arab Emirates**
Paragraph 15	
~~14.~~15. Some strains belonging to the O serogroups other than O1 and O139 (referred as non-O1/non-O139) can cause food-borne diarrhoea that is milder than cholera. Recent years have seen an increase in infections associated with these particular strains, ~~with the first outbreak reported in 2018 from the consumption of herring roe.~~ We suggest deleting the reference to the first outbreak. Rationale: There are earlier publications, see link: Global emergence of environmental non-O1/O139 Vibrio cholerae infections linked with climate change: a neglected research field? (wiley.com) https://ami-journals.onlinelibrary.wiley.com/doi/abs/10.1111/1462-2920.15040	**Norway**
Paragraph 16	
~~15.~~16. Outbreaks of food-borne cholera have been noted ~~quite often~~ in the past 30 years; seafood, including bivalve molluscs, crustaceans, and ~~and~~ finfish, **- as well as contact with** ~~and~~ surface water ~~contact~~ and seafood handling are most often ~~incriminated in~~ linked to food-borne cholera cases in many countries. ~~While shrimp has historically been a concern for transmission of choleragenic V. cholerae in international trade, it has not been linked to outbreaks and it is rarely found in shrimp in international trade.~~ A strong association has been observed between continuous changes in environmental and climate-related factors, particularly water temperature and salinity, and cholera infections. However, there are several complex and multifaceted epidemiological factors that are often associated with these factors.	**Canada**
~~15.~~16. Outbreaks of food-borne cholera have been noted in some parts of the world ~~quite often~~ in the past 30 years; seafood, including bivalve molluscs, crustaceans, ~~and~~ finfish, and surface water contact and seafood handling are most often ~~incriminated in~~ linked to food-borne cholera cases in many countries. ~~While shrimp has historically been a concern for transmission of choleragenic V. cholerae in international trade, it has not been linked to outbreaks and it is rarely found in shrimp in international trade.~~ A strong association has been observed between continuous changes in environmental and climate-related factors, particularly water temperature and salinity, and cholera infections. However, there are several complex and multifaceted epidemiological factors that are often associated with these factors. The EUMS agree to mention that, in according to MRA 35, the climate change could play a role in increasing risks associated with pathogenic vibrios (Baker- Austin et al., 2012), and in particular non-cholera vibrios such as V. vulnificus, V. parahaemolyticus, and non-O1 V. cholerae	**European Union**

(Baker-Austin et al200., 2017). The EUMS suggest amending the first sentence as follows: “Outbreaks of food-borne cholera have been noted in some parts of the world in the past 30 years…”. The final sentence to be added to Par 16 as proposed in question 6 has the agreement of the EUMS.	
~~15.~~16. En los últimos 30 años se han registrado ~~a menudo~~ brotes de cólera transmitidos por alimentos; en muchos países los alimentos de origen marino, ~~inclusive~~(incluyendo: moluscos bivalvos, crustáceos~~ y pescados~~ y peces de ~~aleta~~aleta), así como el contacto con las aguas superficiales y la manipulación de los alimentos de origen marino son los ~~productos incriminados en~~ factores más frecuentemente relacionados con los casos de cólera de transmisión alimentaria en muchos países. ~~Mientras que los camarones históricamente han sido considerados como una preocupación en la transmisión del *V. cholerae* toxigénico en el comercio internacional, en realidad no se ha ligado a brotes y muy rara vez se ha encontrado en camarones comercializados a nivel internacional.~~ Se ha observado una fuerte asociación entre los cambios continuos en los factores medioambientales y relacionados con el clima, en particular, la temperatura y salinidad del agua, y las infecciones de cólera. Sin embargo, existen varios elementos epidemiológicos complejos y polifacéticos que suelen estar asociados a estos factores. Uruguay propone agregar el paréntesis, y sustituir inclusive por incluyendo	**Uruguay**
Vibrio vulnificus	
Vibrio vulnificus Suggest bolding to improve readability.	**Canada**
Question to EWG members 5	
Se sugiere tener en cuenta lo descrito por JEMRA report.	**Colombia**
Las presidencias propusieron modificar la declaración relativa a los factores de virulencia de V. vulnificus, pero que no se debería incorporar información detallada sobre el factor de virulencia de V. vulnificus, sino simplemente remitir al informe de las JEMRA. Uruguay coincide con esta propuesta.	**Uruguay**
Question to EWG members 6	
Se está de acuerdo con incluir el aparte al párrafo 16: “A strong association has been observed between continuous changes in environmental and climate-related factors, particularly water temperature and salinity, and cholera infections. However, there are several complex and multifaceted epidemiological factors that are often associated with these factors.”	**Colombia**
“A strong association has been observed between continuous changes in environmental and climate-related factors, particularly water temperature and salinity, and cholera infections. However, there are several complex and multifaceted epidemiological factors that are often associated with these factors.” The final sentence as proposed in question 6 has the agreement of the EUMS.	**European Union**
“Se ha observado una fuerte asociación entre los cambios continuos en los factores medioambientales y relacionados con el clima, en particular, la temperatura y salinidad del agua, y las infecciones de cólera. Sin embargo, existen varios elementos epidemiológicos complejos y polifacéticos que suelen estar asociados con estos factores.” Uruguay esta de acuerdo con la propuesta	**Uruguay**

Algunos miembros proporcionaron información adicional pertinente sobre ~~V. cholerae.~~*V. cholerae.* Se debe emplear letras itálicas en "V. cholerae"	**Venezuela (Bolivarian Republic of)**
Paragraph 17	
~~16.~~17. *V. vulnificus* can occasionally cause mild gastroenteritis in healthy individuals, but it can cause primary septicaemia in individuals with chronic pre-existing conditions, especially liver disease or alcoholism, diabetes, haemochromatosis and HIV/AIDS, following consumption of raw or partially cooked treated bivalve molluscs and other seafood. This is a serious, ~~often fatal,~~ disease with one of the highest fatality rates of any known foodborne bacterial pathogen. ~~The ability to acquire iron is considered essential for virulence expression of *V. vulnificus*, but a virulence determinant has not been established and, therefore, it is not clear whether only a particular group of the strains are virulent. The host factor (underlying chronic diseases) appears to be the primary determinant for *V. vulnificus* infection.~~ The dose response for humans is ~~not known~~still unclear (certain epidemiological data estimated it at 1000 cells) however more data are necessary. Incubation period ranges from 7 hours to several days, with the average being ~~26~~ 24 hours. ~~The dose response for humans is not known.~~ Some virulence factors have been identified, however definitive virulence determinants have not yet been established, therefore, it is not clear whether all strains are capable of causing disease. The ability to acquire iron is considered essential for virulence expression of *V. vulnificus*, and other relevant virulence factors include the capsule and the MARTX toxin (Multi Functional Autoprocessing Repeat in Toxin), also known as RtxA1 toxin, the virulence correlated gene (*vcg*) and the pilus-type IV- related gene (*pilF*) [6,7]. The EUMS suggest to replace the sentence: "…following consumption of raw or partially cooked bivalve molluscs and other seafood" with: "…following consumption of raw or partially cooked treated bivalve molluscs and other seafood". Rationale: It may be useful to harmonize the terminology in the document. The EUMS also suggest replacing "The dose response for humans is not known" by "the dose response for humans is still unclear (certain epidemiological data estimated it at 1000 cells) however more data are necessary". Rationale: there are data that make an estimation, the word unclear is more science based than unknown.	**European Union**
~~16.~~17. *V. vulnificus* can occasionally cause mild gastroenteritis in healthy individuals, but it can cause primary septicaemia in individuals with chronic pre-existing conditions, especially liver disease or alcoholism, diabetes, haemochromatosis and HIV/AIDS, following consumption of raw or partially cooked bivalve molluscs and other seafood. This is a serious, ~~often fatal,~~ disease with one of the highest fatality rates of any known foodborne bacterial pathogen. ~~The ability to acquire iron is considered essential for virulence expression of *V. vulnificus*, but a virulence determinant has not been established and, therefore, it is not clear whether only a particular group of the strains are virulent. The host factor (underlying chronic diseases) appears to be the primary determinant for *V. vulnificus* infection.~~ The dose response for humans is not known. Incubation period ranges from 7 hours to several days, with the average being ~~26~~ 24 hours. ~~The dose response for humans is not known.~~ Some virulence factors have been identified, however definitive virulence determinants have not yet been established, therefore, it is not clear whether all strains are capable of causing disease. The ability to acquire iron is considered essential for virulence expression of *V. vulnificus*, and other relevant virulence factors include the capsule and the MARTX toxin (Multi Functional Autoprocessing Repeat in Toxin), also known as RtxA1 toxin, the virulence correlated gene (*vcg*) and the pilus-type IV- related gene (*pilF*) [6,7]. Similar details have not been provided for other Vibrio species, in particular Vp. A consistent format and content should be applied.	**New Zealand**
Paragraph 18	

18. Foodborne illness from *V. vulnificus* is characterized by sporadic cases ~~and an outbreak has never been reported.~~ but ~~However,~~ outbreaks have occurred. *V. vulnificus* has been isolated from oysters, other bivalve molluscs, and other seafood worldwide.	**Canada**
18. Foodborne illness from *V. vulnificus* is characterized by sporadic cases ~~and an outbreak has never been reported~~. However, outbreaks have occurred. *V. vulnificus* has been isolated from oysters, other bivalve molluscs, and other seafood worldwide. Change: Reword - Most of foodborne illnesses associated with V. vulnificus are sporadic cases although some outbreaks have been reported. Reason: Reword for clarity	**New Zealand**
18. Foodborne illness from *V. vulnificus* is characterized by sporadic cases ~~and an outbreak has never been reported. ,~~ h~~H~~owever~~o~~wever, outbreaks have occurred. *V. vulnificus* has been isolated from oysters, other bivalve molluscs, and other seafood worldwide.	**United Kingdom**
Paragraph 19	
19. Seawater temperature has been reported as one of the principal environmental factors increasing the abundance of V. vulnificus in many areas of the world. Studies in 2008 have involved inoculation of live oysters with V. vulnificus and have shown that growth is possible in oysters at least in the temperature range of 13-30°C.	**Canada**
Paragraph 20	
~~19.~~20. ~~The densities of V. vulnificus are high in oysters at harvest when water temperatures exceed 20°C in areas where V. vulnificus is endemic; V. vulnificus multiplies in oysters at a temperature higher than 13°C. The salinity optimum for V. vulnificus appears to vary considerably from area to area, but highest numbers are usually found at intermediate salinities of 5 to 25 g/l (ppt: parts per thousand). Relaying oysters to high salinity waters (>32 g/l (ppt: parts per thousand) was shown to reduce V. vulnificus numbers by 3–4 logs (<10 per g) within 2 weeks.~~ According to the data available, the salinity in the coastal ~~environmental~~ environment has played an important role in *V. vulnificus* incidence and population levels. Evidence shows that salinity is negatively correlated with *V. vulnificus* concentrations[8]. *V. vulnificus* is affected by salinity, where levels lower than 1 ppt (parts per thousand) or higher than 30 ppt will not allow its growth. Flow-through depuration with higher salinity levels (>30 ppt) may be used to reduce or eliminate *V. vulnificus* in oysters. High-salinity field or high salinity recirculating aquaculture (>30 ppt) may effectively reduce *V. vulnificus* within 21 to 30 days, although reductions vary.	**Canada**
~~19.~~20. ~~The densities of V. vulnificus are high in oysters at harvest when water temperatures exceed 20°C in areas where V. vulnificus is endemic; V. vulnificus multiplies in oysters at a temperature higher than 13°C. The salinity optimum for V. vulnificus appears to vary considerably from area to area, but highest numbers are usually found at intermediate salinities of 5 to 25 g/l (ppt: parts per thousand). Relaying oysters to high salinity waters (>32 g/l (ppt: parts per thousand) was shown to reduce V. vulnificus numbers by 3–4 logs (<10 per g) within 2 weeks.~~ According to the data available, the salinity in the coastal environmental has played an important role in *V. vulnificus* incidence and population levels. Evidence shows that salinity is negatively correlated with *V. vulnificus* concentrations[8]. *V. vulnificus* is affected by salinity, where levels lower than 1 ppt (parts per thousand) or higher than 30 ppt will not allow its growth~~. Flow-through depuration with higher salinity levels (>30 ppt) may be used to reduce or eliminate .*V. vulnificus* in oysters. High-salinity field or high salinity recirculating aquaculture (>30 ppt) may effectively reduce *V. vulnificus* within 21 to 30 days, although reductions vary.~~ The EU MS would like to remove the sentence “Flow-through depuration with higher salinity levels (>30 ppt) may be used to reduce or eliminate V. vulnificus in oysters. High-salinity field or high salinity recirculating aquaculture (>30 ppt) may effectively reduce V. vulnificus within 21 to 30 days, although reductions vary.” Rationale: this suggestion, even if scientifically valid, appears to be not realistic in the normal practices and could open the door to criticisms on the applicability of the guide.	**European Union**
~~19.~~20. ~~The densities of V. vulnificus are high in oysters at harvest when water temperatures exceed 20°C in areas where V. vulnificus is endemic; V. vulnificus multiplies in oysters at a temperature higher than 13°C. The salinity optimum for V. vulnificus appears to vary~~	**New Zealand**

~~considerably from area to area, but highest numbers are usually found at intermediate salinities of 5 to 25 g/l (ppt: parts per thousand). Relaying oysters to high salinity waters (>32 g/l (ppt: parts per thousand) was shown to reduce V. vulnificus numbers by 3–4 logs (<10 per g) within 2 weeks.~~ According to the data available, the salinity in the coastal environmental has played an important role in *V. vulnificus* incidence and population levels. Evidence shows that salinity is negatively correlated with *V. vulnificus* concentrations[8]. *V. vulnificus* is affected by salinity, where levels lower than 1 ppt (parts per thousand) or higher than 30 ppt will not allow its growth. Flow-through depuration with higher salinity levels (>30 ppt) may be used to reduce or eliminate *V. vulnificus* in oysters. High-salinity field or high salinity recirculating aquaculture (>30 ppt) may effectively reduce *V. vulnificus* within 21 to 30 days, although reductions vary. Change: Reword - According to available data, the coastal environmental salinity plays an important role in V. vulnificus incidence and population levels. Change: Reword - Salinity levels lower than 1 ppt (parts per thousand) or higher than 30 ppt will not allow V. vulnificus growth Change: Reword - Flow-through depuration, high-salinity fields or high salinity recirculating aquaculture, with salinity levels higher than 30 ppt, may effectively reduce V. vulnificus levels within 21 to 30 days, although levels of reductions may vary.	
Suggest to replace this paragraph with: " V. vulnificus is a naturally occurring, free-living inhabitant of estuarine and marine environments. It prefers tropical to subtropical climates, and has been isolated from waters where temperatures range from 9 to 31 °C. It proliferates during months where the water temperature exceeds 18 °C. total viable V. vulnificus cells often drops to nearly undetectable levels at temperatures below 10 °C.	**United Arab Emirates**
Question to EWG members 7	
Se considera pertinente lo propuesto por los Chairs del documento.	**Colombia**
United Arab Emirates suggests that this section to remain unchanged at this time and to await the UK's proposals for structural alignment with the latest version of CXC1	**United Arab Emirates**
Las presidencias propusieron que la estructura de esta sección permaneciera sin cambios por el momento, a la espera de las propuestas del Reino Unido sobre la armonización estructural con la última versión de CXC 1-1969. Uruguay esta de acuerdo con la propuesta	**Uruguay**
Paragraph 21	
~~20.~~21. A number of FAO/WHO risk assessments have been conducted. The first ones were on *Vibrio vulnificus* in raw oysters and choleragenic *Vibrio cholerae* O1 and O139 in warm water shrimp ~~in international trade have been~~ which were published in ~~(~~2005~~)~~[9,10]. Additional risk assessments on *Vibrio parahaemolyticus* in raw oysters, in raw and undercooked finfish and in Anadera granosa (bloody clams) have been completed and published in 2011[11]. ~~These risk assessments constitute the basis of this Code.~~ Finally, the FAO/WHO convened an Expert Meeting on 13-17 September 2010, and a meeting report has been ~~recently~~ published in 2020[12]. Suggest to remove, since it has been 4 years.	**Canada**
Paragraph 22	

22. FAO/WHO convened an Expert Meeting in 2011 that produced a Guidance document on methods for detection and enumeration of *V. parahaemolyticus* and *V. vulnificus*, including performance characteristics of the methods and the application of these methods for different end uses, ranging from harvest area monitoring, postharvest process verification, end product testing, outbreak investigation and growth studies[13]. The experts reviewed and updated the existing risk assessment models/tools ~~or~~ for *V. parahaemolyticus* and *V. vulnificus* that could be used to inform a range of risk management questions in a number of ~~geographical~~ geographically different regions. Experts agreed that the basic information of pathogenicity (including virulence markers), major factors relevant to the survival of *V. parahaemolyticus* and *V. vulnificus* ~~(water~~ (air and water temperature and salinity) and other main components used in the original models have not ~~been~~ changed; however, there are several new models and methods that have become available in the last decade. These risk assessments constitute the basis of this Code. Consider if air temperature should be included to align with paragraph 9 in the Annex on bivalve molluscs. Indirectly, as well, the air temperature will have an impact on water temperature.	**Canada**
Paragraph 23	
~~21.~~23. Estas Directrices proporcionan una guía para el control de las especies patógenas de Vibrio en los alimentos de origen marino, con la vista hacia la protección de la salud de los consumidores y para asegurar prácticas leales en el comercio de alimentos. El propósito principal de estas Directrices es subrayar las medidas clave de control que pueden ser usadas para minimizar la posibilidad de que surja una enfermedad debido a la presencia de especies patógenas de Vibrio en los alimentos de origen marino. Estas Directrices ~~también~~ proporcionan información que será ~~del interés~~ de ~~la~~ interés para industria alimentaria, los consumidores, las autoridades de reglamentación , las autoridades competentes, y otras partes interesadas. Sugiere la modificación en la redacción.	**Uruguay**
~~21.~~23. Estas Directrices proporcionan una guía para el control de las especies patógenas de ~~Vibrio~~ *Vibrio* en los alimentos de origen marino, con la vista hacia la protección de la salud de los consumidores y para asegurar prácticas leales en el comercio de alimentos. El propósito principal de estas Directrices es subrayar las medidas clave de control que pueden ser usadas para minimizar la posibilidad de que surja una enfermedad debido a la presencia de especies patógenas de ~~Vibrio~~ *Vibrio* en los alimentos de origen marino. Estas Directrices ~~también~~ proporcionan información que será del interés de la industria alimentaria, los consumidores, las autoridades de reglamentación y otras partes interesadas. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION II – SCOPE, USE AND DEFINITION	
2.1 Scope Zambia supports the scope of the standard considering sea food is not indigenous to the country and what is consumed is imported frozen from other countries. Hence this scope is adequate to cover the products imported on the market for human consumption.	**Zambia**
Paragraph 24	
~~22.~~24. These Guidelines cover seafood that is marketed and may be consumed in a live, raw, chilled/frozen, partially treated, or ~~thoroughly~~ in a treated state. It is applicable ~~to~~ across the whole food chain from primary production to ~~final~~ consumption. Bivalve molluscs are covered more thoroughly in the Annex, which is supplemental to these Guidelines.	**Canada**

To align with wording suggested by the Chairs in paragraph 12.	
Paragraph 25	
~~23.~~25. Como ~~los~~ agentes causales más importantes de las enfermedades provocadas por bacterias y transmitidas por los alimentos asociados con los alimentos de origen marino, los peligros microbiológicos objetivo de estas Directrices son ~~las especies~~ tres *Vibrio* spp. patógenas ~~de~~ (*V. parahaemolyticus*, *V. vulnificus* y *V. cholerae* ~~*toxigénico)*~~). Las medidas de control descritas en estas Directrices podrán ser aplicadas a otras especies patógenas de Vibrio.	**Uruguay**
~~23.~~25. Como los agentes causales más importantes de las enfermedades provocadas por bacterias y transmitidas por los alimentos asociados con los alimentos de origen marino, los peligros microbiológicos objetivo de estas Directrices son ~~las especies~~ tres *Vibrio* spp. patógenas ~~de~~ (*V. parahaemolyticus*, *V. vulnificus* y *V. cholerae* ~~*toxigénico)*~~). Las medidas de control descritas en estas Directrices podrán ser aplicadas a otras especies patógenas de ~~Vibrio.~~ *Vibrio.* "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 26	
~~24.~~26. These Guidelines are supplemental to, and should be used in conjunction with, the *General Principles of Food Hygiene* (CXC 1-1969) and the *Code of Practice for Fish and Fishery Products* (CXC 52-2003). The application of these Guidelines by countries may require modifications and amendments, taking into account regional differences such as the prevalence of pathogenic *Vibrio* spp., air and water temperatures and salinity. Consider if air temperature should be included to align with paragraph 9 in the Annex on bivalve molluscs. Indirectly, as well, the air temperature will have an impact on water temperature.	**Canada**
Paragraph 27	
Refrigeration: The lowering of product temperature to limit microbial activity. The definition should also cover chilling and freezing as they are also applied in the document	**Zambia**
Alimentos de origen marino: en esta definición se están excluyendo los alimentos de origen marino no animales, como algas y plantas acuáticas, que deberían incluirse en la definición de "alimentos". Por otro lado, dado que la definición es de "alimentos de origen marino", se deberían excluir los de agua dulce, para lo cual quedaría "provenientes de fuentes marinas" únicamente.	**Venezuela (Bolivarian Republic of)**
~~Thoroughly treated~~Treated: Any treatment intended to eliminate *Vibrio* spp. in seafood. To align with wording suggested by the Chairs in paragraph 12.	**Canada**
~~Thoroughly treated~~Treated: Any treatment intended to eliminate *Vibrio* spp. in seafood. Rationale: According to definitions there is no difference between the definition of treated and thoroughly treated. The EUMS suggest keeping only treated. The EUMS suggest including some examples of partially treated and treated, specifying, for example, which type of heat treatments would be included in each of them.	**European Union**
Tratamiento ~~a fondo~~completo: Cualquier tratamiento destinado a eliminar *Vibrio* spp. en los alimentos de origen marino.	**Uruguay**
Clean water: ~~means w~~Water ~~that does not meet the criteria for potable water but~~ from any source where harmful microbiological contamination, substances and/or toxic plankton are not present in such quantities that may affect the safety of fish, shellfish and their products intended for human consumption.	**Norway**

We find the alignment with the definition i CXC 52-2003 useful, as there are several references to the Fish Code through the document. However we suggests deleting the wording ”that does not meet the criteria for potable water”. Rationale: A fully alignment with the Fish Code would be better, as there is no need to exclude potable water from the definition.	
Agua limpia: ~~significa agua~~ Agua que no cumple los criterios del agua potable, pero procede de cualquier origen en que la contaminación microbiológica perjudicial, sustancias y/o plancton tóxico no estén presentes en tales cantidades que pudieran afectar a la inocuidad del pescado, los mariscos y sus productos destinados para el consumo humano. Uruguay considera que se debería tomar la definición del documento CXC 100/2023 próximo a ser publicado.	**Uruguay**
Agua limpia: ~~significa agua~~ Agua que no cumple los criterios del agua potable, pero procede de cualquier origen en que la contaminación microbiológica perjudicial, sustancias y/o plancton tóxico no estén presentes en tales cantidades que pudieran afectar a la inocuidad del pescado, los mariscos y sus productos destinados para el consumo humano. Se considera necesario establecer la definición de agua potable, ya que el lector amerita poder discernir entre agua limpia y agua potable, considerando la distinción que se realiza durante el texto para las distintas operaciones. Debe quedar clara la diferencia entre agua limpia y agua potable. Por otro lado, se considera que no queda claro si se recomienda o no utilizar agua de mar limpia para determinadas operaciones post captura o post cosecha, tal como se menciona en diferentes documentos de la FAO y OMS.	**Venezuela (Bolivarian Republic of)**
SECTION III - PRIMARY PRODUCTION	
Australia notes the replacement of environmental ‘hygiene’ with ‘control’. This section deals more with indicators for when Vibrio spp may be present at levels that could pose concerns, eg temperature and salinity (and now time) rather than control measures per se. These are more trigger levels for implementing further management options, eg harvesting bivalves molluscs while in water/outgoing tide prior to exposure to ambient air temperature, or when cooler; cease harvesting; depuration. Further, the addition of ‘time’ needs to be clarified if this means ‘time to get under temperature control’. Noting there is no single approach that can be identified – the importance of the concept of individual growing/harvest area assessment should be reinforced. The use of ‘control’ in this section is not accurate given you cannot control environmental factors. You can however, use them as indicators to support action taken.	**Australia**
Paragraph 29	
~~27.~~29. Generally, pre-harvest controls are more applicable to bivalve molluscs than to other seafood (e.g. open-sea harvested fish). Where relevant to other seafood, pre-harvest controls should be considered for areas where the likelihood of introduction of pathogenic *Vibrio* spp. is significant and can be controlled Change: Reword - "...more applicable to farmed seafood (including bivalve molluscs and fish) than..." Reason: This could also apply to farmed fish, plus distinction between grown and wild bivalve molluscs.	**New Zealand**
Paragraph 30	
~~28.~~30. Temperature, time and salinity should be considered for controlling pathogenic *Vibrio* spp. in seafood. Where applicable, specific temperature or salinity levels that can be used as control measures should be identified based on epidemiological and exposure studies as well as monitoring of pre-harvest pathogenic *Vibrio* levels.	**Canada**

Temperature and salinity are parameters for water (areas). Regarding time, it is not clear if it is also related to water. Clarification or an example could be included.	
~~28.~~30. Temperature, time and salinity should be considered for controlling pathogenic *Vibrio* spp. in seafood. Where applicable, specific temperature or salinity levels that can be used as control measures should be identified based on epidemiological and exposure studies as well as monitoring of pre-harvest pathogenic *Vibrio* levels. What temperatures are being referred to? Is it water temp, storage or holding temps, ambient temp, e.g. air or both?	**New Zealand**
~~28.~~30. Deberían considerarse los factores de temperatura, tiempo y salinidad para controlar a las especies patógenas de *Vibrio* presentes en los alimentos de origen marino. Donde sea aplicable, debería tratarse de identificar los niveles específicos de temperatura o salinidad a ser usados como medidas de control, con base en estudios epidemiológicos y de exposición, así como vigilar los niveles patógenos de *Vibrio* antes de la cosecha. Uruguay consulta: ¿Cómo se vigilarían los niveles de patógenos?	**Uruguay**
Paragraph 31	
~~29.~~31. For monitoring bivalve molluscs, at harvest, refer to the Annex ~~to~~of ~~this~~ these ~~Guideline~~Guidelines.	**Canada**
Paragraph 32	
~~30.~~32. For seafood grown in coastal localities, especially in cholera-endemic areas, care should be taken to avoid ~~contamination~~ harvest of seafood contaminated with faecal choleragenic *V. cholerae*. This includes contamination caused by significant environmental impacts such as ~~flooding,~~ flooding and unregulated discharges from sewage spills.	**Canada**
~~30.~~32. For seafood grown in coastal localities, especially in cholera-endemic areas, care should be taken to avoid ~~contamination~~ harvest of seafood contaminated with faecal choleragenic *V. cholerae*. This includes contamination caused by significant environmental impacts such as flooding~~, unregulated~~, and discharges from sewage spills. UK suggests the deletion of the word "unregulated" as consented (regulated) discharges may also have an impact.	**United Kingdom**
3.2 Hygienic production of seafood sources	
3.2 Producción higiénica de las fuentes de alimentos de origen marino Uruguay sugiere complementar el título.	**Uruguay**
Paragraph 34	
~~32.~~34. For the storage and handling of seafood aboard fishing vessels, ~~portable~~ potable or clean water should be used for seafood intended to be eaten raw or partially treated, and for preparing ice ~~for such use~~. The use of sea water taken from near the seashore or from a drainage outlet or river contaminated with sewage should be avoided. Seafood should be held at temperatures that minimize and/or prevent the growth of pathogenic *Vibrio* spp. after harvest, for example, in an ice-water slurry, ice or refrigeration on fishing vessels and at harvest sites. The delay between harvest and refrigeration should be as short as ~~possible~~ ~~practicable~~possible. Should read potable not portable. General Comment: For consideration, throughout the text, does potable water also need to be included every time clean water is mention?	**Canada**

Possible seems more relevant and is commonly used. It is also used in paragraph 63. Given the addition of potable to this paragraph, potable should also be included in paragraph 35, 36 and 37.	
~~32.~~34. For the storage and handling of seafood aboard fishing vessels, ~~portable~~ potable or clean water should be used for seafood intended to be eaten raw or partially treated, and for preparing ice ~~for such use~~. The use of sea water taken from near the seashore or from a drainage outlet or river contaminated with sewage should be avoided. Seafood should be held at temperatures that minimize and/or prevent the growth of pathogenic *Vibrio* spp. after harvest, for example, in an ice-water slurry, ice or refrigeration on fishing vessels and at harvest sites. The delay between harvest and refrigeration should be as short as ~~possible~~ practicable. The EUMS disagree with the modification in the last sentence “The delay between harvest and refrigeration should be as short as practicable”. Rationale, the delay shall be as short as possible putting in place all the measures to reduce the time. Practicable introduces the possibility to prolong the time because in a certain situation it was not possible to reduce the delay.	**European Union**
~~32.~~34. For the storage and handling of seafood aboard fishing vessels, portable or clean water should be used for seafood intended to be eaten raw or partially treated, and for preparing ice ~~for such use~~. The use of sea water taken from near the seashore ~~or~~ where the risk of contamination from a drainage outlet or river contaminated with sewage should be avoided. Seafood should be held at temperatures that minimize and/or prevent the growth of pathogenic *Vibrio* spp. after harvest, for example, in an ice-water slurry, ice or refrigeration on fishing vessels and at harvest sites. The delay between harvest and refrigeration should be as short as ~~possible~~ practicable. Japan suggests to add "where the risk of contamination" to ensure flexibility and risk-based concept of this document since the water quality of seashore depends on the geographical region, seasonality, industrial or sewage outflow.	**Japan**
~~32.~~34. For the storage and handling of seafood aboard fishing vessels, portable or clean water should be used for seafood intended to be eaten raw or partially treated, and for preparing ice ~~for such use~~. The use of sea water taken from near the seashore or from a drainage outlet or river contaminated with sewage should be avoided. Seafood should be held at temperatures that minimize and/or prevent the growth of pathogenic *Vibrio* spp. after harvest, for example, in an ice-water slurry, ice or refrigeration on fishing vessels and at harvest sites. The delay between harvest and refrigeration should be as short as ~~possible~~ practicable. There are issue with using ice slurries for BMS – are these covered later? e.g BMS death, x contamination due to consecutive batches being cooled in ice slurry. Change: spelling "...potable..." Consider adding other harvest or post-harvest controls for example, harvest at cool times of the day, just after the first BMS emerge. Short time from harvest to temp control.	**New Zealand**
~~32.~~34. For the storage and handling of seafood aboard fishing vessels, ~~portable~~ potable or clean water should be used for seafood intended to be eaten raw or partially treated, and for preparing ice ~~for such use~~. The use of sea water taken from near the seashore or from a drainage outlet or river contaminated with sewage should be avoided. Seafood should be held at temperatures that minimize and/or prevent the growth of pathogenic *Vibrio* spp. after harvest, for example, in an ice-water slurry, ice or refrigeration on fishing vessels and at harvest sites. The delay between harvest and refrigeration should be as short as ~~possible~~ practicable.	**Norway**

~~32.~~34. For the storage and handling of seafood aboard fishing vessels, ~~portable~~ potable or clean water should be used for seafood intended to be eaten raw or partially treated, and for preparing ice ~~for such use~~. The use of sea water taken from near the seashore or from a drainage outlet or river contaminated with sewage should be avoided. Seafood should be held at temperatures that minimize and/or prevent the growth of pathogenic *Vibrio* spp. after harvest, for example, in an ice-water slurry, ice or refrigeration on fishing vessels and at harvest sites. The delay between harvest and refrigeration should be as short as ~~possible~~ practicable. To change “portable or clean water” to “potable or clean water”	**Philippines**
~~32.~~34. For the storage and handling of seafood aboard fishing vessels, ~~portable~~ potable or clean water should be used for seafood intended to be eaten raw or partially treated, and for preparing ice ~~for such use~~. The use of sea water taken ~~from near the seashore~~ coastal sources or from a drainage outlet or river contaminated with sewage should be ~~avoided~~avoided unless appropriate monitoring and control measures are in place. Seafood should be held at temperatures that minimize and/or prevent the growth of pathogenic *Vibrio* spp. after harvest, for example, in an ice-water slurry, ice or refrigeration on fishing vessels and at harvest sites. The delay between harvest and refrigeration should be as short as ~~possible~~ practicable. The UK suggests edits to align with the draft text in paragraph 24 of the Safe Use and Reuse of water Annex on Fish and Fishery Products	**United Kingdom**
Guidelines should be specific if it will potable water to be used or clean water. in most cases, it is more practicable to use clean water as it is easily accessed than the use of potable water.	**Zambia**
~~32.~~34. For the storage and handling of seafood aboard fishing vessels, portable or clean water should be used for seafood intended to be eaten raw or partially treated, and for preparing ice ~~for such use~~. The use of sea water taken from near the seashore or from a drainage outlet or river contaminated with sewage should be avoided. Seafood should be held at temperatures that minimize and/or prevent the growth of pathogenic *Vibrio* spp. after harvest, for example, in an ice-water slurry, ice or refrigeration on fishing vessels and at harvest sites. The delay between harvest and refrigeration should be as short as ~~possible~~ practicable. Is "portable" the correct word or should this be "potable"?	**ICUMSA**
Paragraph 35	
~~33.~~35. For on-boat cooked (boiled, blanched) seafood products, ice and/or refrigeration should be used to facilitate the rapid cooling. Ice made from potable water or clean water should be used to minimize cross-contamination. Consider if this should only be potable water if cooked products come into contact with ice and to be consistent with paragraph 71.	**Canada**
~~33.~~35. For ~~on-boat~~ on board cooked (boiled, blanched) seafood products, ice and/or refrigeration should be used to facilitate the rapid cooling. Ice made from clean water should be used to minimize cross-contamination.	**United Kingdom**
~~33.~~35. Para ~~cocinar (hervidos o sancochados)~~ enfriar rápidamente los alimentos de origen marino ~~a~~ cocinados bordo de la embarcación (hervidos o sancochados) debería utilizarse hielo o refrigeración para facilitar un enfriamiento rápido. Debería utilizarse hielo hecho con agua limpia a fin de minimizar la contaminación cruzada. Se sugiere corrección de redacción en español para mayor claridad	**Uruguay**
Paragraph 36	
~~34.~~36. For the storage of live seafood products, potable or clean water should be used to minimize ~~initial cross~~ contamination from the water.	**Canada**
Paragraph 37	

~~35.~~37. When the product is required to be washed, whether onboard the boat or at port, potable or clean water should be used.	**Canada**
~~35.~~37. When the product is required to be washed, whether onboard the boat or at port, potable water or clean water should be used. The EUMS suggest modifying the sentence as follows: “When the product is required to be washed, whether onboard the boat or at port, potable water or clean water should be used”. Rationale: the use of potable water is always to be preferred	**European Union**
Paragraph 38	
~~36.~~38. During on-land transportation from the landing port to the on-shore market and/or processing establishments, in order to minimize and/or prevent the growth of pathogenic *Vibrio* spp. in seafood, the time elapsed between harvest and refrigeration or freezing is critical and should be minimized. Ice can be used efficiently to keep seafood ~~under refrigeration~~ chilled during transportation and sale. Live fish and shellfish should be transported at the lowest temperature tolerable for the species. Covered containers should be used for transport to prevent contamination. Change: "During transportation from harvest to the on-shore...." Reason: to expand the steps when time from harvest should be minimized.	**New Zealand**
~~36.~~38. During ~~on-land~~ transportation from the landing port to the on-shore market and/or processing establishments, ~~in order~~ to minimize and/or prevent the growth of pathogenic *Vibrio* spp. in seafood, the time elapsed between harvest and refrigeration or freezing is critical and should be minimized. Ice can be used ~~efficiently~~ to keep seafood ~~under refrigeration~~ chilled during transportation and sale. Live fish and shellfish should be transported at the lowest temperature tolerable for the species. Covered containers should be used for transport to prevent contamination.	**United Kingdom**
Paragraph 39	
~~37.~~39. Refer to Section ~~3.4~~8.4 of the *General Principles of Food Hygiene* (CXC 1-1969) and the *Guidelines for the Safe Use and Reuse of Water in Food Production and Processing* (CXG 100-2023). The EUMS consider that instead of a reference to CXG 100-2023 (Guidelines for the Safe Use and Reuse of Water in Food Production and Processing) in a section on “Cleaning, maintenance and personnel hygiene at primary production, it might be appropriate make to a separate section (e.g. 3.5) on water, making reference to CXG 100-2023, in particular the decision tree in Figure 3 of Annex II (subject to progress in the adoption steps of this Annex II).	**European Union**
Paragraph 40	
~~38.~~40. Refer to Section ~~7.1~~12.1 of the *General Principles of Food Hygiene* (CXC 1-1969). A carrier who is excreting ~~choleragenic~~ *V. cholerae* should not handle seafood or ice for the storage of seafood, which may result in the contamination of the seafood with choleragenic *V. cholerae*. Water should also included among what the carrier should not handle as it can also get contaminated. Not just ice and sea food	**Zambia**
SECTION IV - ESTABLISHMENT: DESIGN ~~AND~~ OF FACILITIES AND EQUIPMENT	
Paragraph 46	
~~44.~~46. ~~Whenever feasible,~~ premises and rooms should be designed to keep raw material areas separated from finished seafood product areas. This can be accomplished in a number of ways, including linear product flow (raw materials to finished products) or physical partitions.	**European Union**

This requirement should be compulsory and not “whenever feasible”.	
Paragraph 47	
~~45.~~47. ~~Where feasible,~~ the washing room for food handling equipment used ~~in the~~ for finished product manufacturing should be physically segregated from the finished product processing area. This requirement should be compulsory and not “whenever feasible”.	**European Union**
Paragraph 52	
~~50.~~52. The chill room should be equipped with a calibrated thermometer. The Philippines would like to suggest a further description or definition of what chill room under section 4.3 Equipment is being described to avoid confusion for those who will use these guidelines.	**Philippines**
Calibrated thermometer which should be often monitored for functionality	**Zambia**
4.4 Facilities	
4.4 Facilities Australia thanks the chairs for considering Australia’s previous response for temperature control and proposing 5°C or lower. We note new insertion of text ‘to limit growth’. Australia could accept reverting to 10°C or lower as this does limit the growth of Vp – but does not prevent its growth. If the intent was to prevent growth, 5°C or lower would be appropriate.	**Australia**
Paragraph 58	
~~57.~~58. La acumulación de desechos sólidos, semisólidos o líquidos debería ser minimizada para prevenir la posible contaminación ya que las especies patógenas de ~~Vibrio~~ *Vibrio* pueden crecer rápidamente en este tipo de desechos bajo ciertas condiciones. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 59	
~~58.~~59. Separate and adequate facilities should be provided to prevent contamination by offal and waste material. What is meant by Separate and adequate facilities should be provided to prevent contamination by offal and waste material. Does this include containers? Presume not separate room.	**New Zealand**
Paragraph 63	
~~62.~~63. The *Code of Practice for Fish and Fishery Products* indicates maintaining the product at temperature as close to 0ºC as possible. For pathogenic *Vibrio* spp., a temperature of ~~10~~ 5ºC or lower is adequate to limit growth. In this Code, ~~10~~ 5ºC is used as the target temperature to prevent/minimize growth of *Vibrio* spp. However, pathogenic bacteria species such as *Listeria monocytogenes, Clostridium botulinum* and histamine formers may also be hazards in addition to *Vibrio* spp. If this is the case, more strict temperature control, as close to 0ºC as possible, should be implemented. In the case of bivalve molluscs, a different temperature control specified in the Annex would be required. The facility should be capable of controlling ambient temperature to ensure that product temperature during processing of raw seafood is maintained at a temperature of ~~10~~ 5ºC or lower. Change: Remove words	**New Zealand**

Change: Remove this sentence Reason: We don't want to specify processing room temperatures. This can be managed other ways e.g. by minimising time out of chilled storage. Concerned about product temp, and also minimising growth on equip surfaces. This should be science based and proportionate to risk. Also what effect does this have on live shellfish?	
~~62.~~63. El *Código de prácticas para el pescado y los productos pesqueros* señala mantener el producto a una temperatura lo más cercana posible a los 0 ºC. Sin embargo, para las especies patógenas de *Vibrio* una temperatura de ~~10~~ 5 ºC o menor es adecuada para limitar el crecimiento. En el presente Código, ~~10~~ 5 °C se utiliza como la temperatura objetivo para prevenir o reducir al mínimo la proliferación de especies de ~~Vibrio~~*Vibrio*. No obstante, las especies de bacterias patógenas, como *Listeria monocytogenes*, *Clostridium botulinum* y otras productoras de histaminas también pueden representar peligros, además de las especies de ~~Vibrio~~*Vibrio*. En tal caso, debería aplicarse un control más estricto de la temperatura, tan cerca de 0°C como sea posible. En el caso de los moluscos bivalvos, se requeriría un control de temperatura diferente especificado en el Anexo. La instalación debería ser capaz de controlar la temperatura ambiente para asegurarse que el alimento crudo de origen marino se mantenga a una temperatura de ~~10~~ 5 °C o menor. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas. Se establecen temperaturas sugeridas para los productos, sin embargo, se indica que, para "el caso de los moluscos bivalvos, se requeriría un control de temperatura diferente especificado en el Anexo". No obstante, en el Anexo I, a excepción de las temperaturas del agua que no han sido asociadas históricamente con enfermedades de V. parahaemolyticus y V. vulnificus, y de las temperaturas postcosecha durante el periodo que transcurre hasta la primera refrigeración, no se establecen temperaturas recomendadas de almacenamiento.	**Venezuela (Bolivarian Republic of)**
NOTE	
***NOTE**: If there are no objections from other members, it is better to control the temperature at "5ºC or lower" to limit the growth of pathogenic Vibrio spp.* The EUMS agree with this change of temperature, however we consider it would be very useful to have a scientific reference to establish this temperature.	**European Union**
Need to ensure that this is science based	**New Zealand**
Uruguay esta de acuerdo per considera que es necesario armonizar la información para que quede claro la temperatura adecuada para el control de Vibrio spp.	**Uruguay**
SECTION V - CONTROL OF OPERATION	
5.2 Key aspects of ~~hygiene control systems~~ GHPs	
5.2 Key aspects of ~~hygiene control systems~~ ~~GHPs~~Good Hygiene Practices (GHPs)	**Canada**
Paragraph 68	
~~67.~~68. Refer to Section 4.1 of the *Code of Practice for Fish and Fishery Products* (CXC 52-2003). Time and temperature are the most important factors affecting the rate of growth of pathogenic *Vibrio* spp. in seafood. ~~At~~ During each processing step~~, in processing~~ the temperature of the product should be controlled and monitored via calibrated ~~thermometer~~thermometers.	**Canada**
Paragraph 69	

~~68.~~69. Clean water at low temperature should be used for washing and processing whole seafood ~~at processing establishments~~. However, the eviscerated cavity of fish and other edible parts of seafood intended for raw consumption (e.g., preparation of sashimi) should be thoroughly washed with potable cold running water. Rationale: make a difference allowing the use of clean water and potable water in different steps of the production with different risks.	**European Union**
Paragraph 71	
~~70.~~71. After cooking ~~and~~ or blanching, potable water should be used for cooling. It is our understanding that Seafood is occasionally blanched (i.e. briefly plunged into boiling water and then refreshed under cold water). However, blanching is used only to remove the skin, reduce strong flavours or extend the shelf life of seafood by blanching immediately before freezing—it is not a cooking method. Therefore, the article “or” is perhaps more appropriate. Alternatively, if the intent of this section is for cooking only, than blanching should be removed.	**Canada**
~~70.~~71. After cooking and blanching, potable water should be used for cooling. Change: Rewording: Any cooling in water after cooking and blanching should involve the use of potable water. Reason: Wording only. Water cooling is not a requirement but if used, water should be potable.	**New Zealand**
Question to EWG members 8	
Se considera pertinente lo propuesto por los Chairs del documento	**Colombia**
Paragraph 72	
~~71.~~72. Food processing practices ~~(e.g., acidification to pH below 4.8, salting to a sodium chloride concentration of more than 10% for V. parahaemolyticus, food preservatives and/or water activity less than 0.94) can be used to minimise the growth and possibly reduce the levels of pathogenic *Vibrio* spp. in seafood.~~ should be used to minimize the growth or reduce the level of the pathogenic *Vibrio* spp. in seafood. Food business operators can choose some of these interventions depending on their actual situation. Examples of these interventions are: Change: replace with: "...can apply appropriate interventions..." Reason: Note if other pathogens need to be controlled using the process step, the step or steps should target the most resistant pathogen.	**New Zealand**
~~71.~~72. ~~Es posible utilizar prácticas de procesamiento de los alimentos para minimizar el crecimiento bacteriano, además de la posible reducción de los niveles de las especies patógenas de Vibrio en los alimentos de origen marino; como por ejemplo: acidificación a un pH menor a 4.8, adición de sal (cloruro de sodio) hasta lograr una concentración mayor al 10% para evitar la presencia de V. parahaemolyticus, adición de conservadores de alimentos, y/o actividad del agua menor a 0.94.~~ Se deberían utilizar prácticas de elaboración de alimentos para minimizar el crecimiento o reducir el nivel de especies patógenas de *Vibrio* en los alimentos de origen marino. Los operadores de empresas de alimentos pueden elegir algunas de estas intervenciones en función de su situación real. Algunos ejemplos de estas intervenciones son los siguientes: En este numeral, se sugiere realizar depuración en condiciones óptimas, incluyendo "una salinidad elevada (30 ppt)". Sin embargo, considerando lo expresado en el Numeral 20, donde se destaca que las salinidades elevadas altas que no permiten el crecimiento son	**Venezuela (Bolivarian Republic of)**

superiores a 30 ppt, y se establece que "la depuración por flujo con niveles de salinidad más elevados (>30 ppt) puede utilizarse para reducir o eliminar V. vulnificus en las ostras". Por tanto, se sugiere considerar que la sugerencia del Numeral 72 sea sobre la base de >30 ppt. Así también, se destaca que en el Numeral 13 del Anexo I se indica que la salinidad vinculada con bajos casos de enfermedades asociadas a moluscos bivalvos por V. parahaemolyticus es de superior a 35 ppt.	
- adding permitted food preservatives which have efficacy in reducing or preventing the growth of *Vibrio* spp. Acceptable food preservatives; the food processors need to determine if the preservative is allowed and if they respect the maximum level of use.	**Canada**
- adding food preservatives which have efficacy in ~~reducing or~~ preventing the growth of *Vibrio* spp. The reduction in Vibrio levels by adding preservatives was moved to the section of "Reducing the level".	**Japan**
- salting to a sodium chloride concentration of more than 10% ~~for~~ to control *V. parahaemolyticus*;	**Canada**
- adding food preservatives which have efficacy in reducing the level of Vibrio spp. - exposing oysters or other seafood to ionising energy, e.g., gamma rays, machine-generated electrons or X-rays. The reduction in Vibrio levels by adding preservatives was moved to the section of "Reducing the level".	**Japan**
- exposing oysters or other seafood to ionising energy, e.g., gamma rays, machine-generated electrons or X-rays. Change: Remove words	**New Zealand**
- depuration under optimal conditions, e.g., at a temperature of 12.5°C and stocking density of two oysters/L of artificial seawater for 5 days, and/or water activity less than 0.94 and high salinity (30 ppt); and Change: Remove words Reason: Do these parameters also work for E. coli? Detail for oysters should be in the Annex.	**New Zealand**
- cryogenic individual quick freezing (IQF) involving the use of cryogenic or blast freezing technology to rapidly lower the product temperature below freezing. Please confirm that it is quick freezing rather than slow freezing?	**New Zealand**
- congelación rápida individual criogénica (IQF, por sus siglas en inglés), que implica el uso de tecnología criogénica o de congelación por aire forzado para reducir rápidamente la temperatura del producto por debajo de la congelación. Uruguay considera que el congelamiento no es una medida de control para reducir estos patógenos, sino para evitar su multiplicación.	**Uruguay**
The use and approval of these technologies should be done in accordance with the regulations/standards of the country where the products would be sold	**New Zealand**

Change: Remove sentence. Reason: This approval applies to everything so is it needed here? What about cooking to inactivate.	
Paragraph 73	
~~72.~~73. When ~~F~~freezing ~~could be~~ is used to reduce the level or prevent the growth of pathogenic *Vibrio* spp. in seafood, consideration should be given to the sensitivity of pathogens to freezing. For example, *V. parahaemolyticus* and *V. vulnificus* are especially sensitive to colder temperatures. To reduce *V. parahaemolyticus* and/or *V. vulnificus* to nondetectable levels, the IQF process should be followed by a period of frozen storage, which may vary depending on the organism. ~~It is needed to consider~~ When freezing, the following should be considered: freezing temperature, length of the time, initial ~~load,~~ microbial load and the rate of temperature ~~decreasing while freezing~~decrease. [14,15]. Suggest a modified sentence for better readability.	**Canada**
~~72.~~73. When ~~F~~freezing ~~could be~~ is used to reduce the level or prevent the growth of pathogenic *Vibrio* spp. in seafood, consideration should be given to the sensitivity of pathogens to freezing. For example, *V. parahaemolyticus* and *V. vulnificus* are especially sensitive to colder temperatures. To reduce *V. parahaemolyticus* and/or *V. vulnificus* to nondetectable levels, the IQF process should be followed by a period of frozen storage, which may vary depending on organism. It is needed to consider the freezing temperature, length of the time, initial load, and rate of temperature decreasing while freezing[14,15]. Change: Add words "For example when freezing..." Change: Remove words	**New Zealand**
~~72.~~73. Cuando se utilice la ~~El proceso de~~ congelación ~~puede ser usado~~ para reducir el nivel o evitar el crecimiento de especies patógenas de Vibrio ~~o inclusive prevenir su crecimiento~~ en los alimentos de origen marino, se debería considerar la sensibilidad de los patógenos a la congelación. Por ejemplo, *V. parahaemolyticus* y *V. vulnificus* son especialmente sensibles a temperaturas más frías. Para reducir *V. parahaemolyticus* o *V. vulnificus* a niveles no detectables, el proceso IQF debería ir seguido de un periodo de almacenamiento congelado, que puede variar en función del organismo. Es necesario tener en cuenta la temperatura de congelación, la duración, la carga inicial y la velocidad de disminución de la temperatura durante la congelación[14,15]. Uruguay considera que para que la congelación se use como medida de reducción de patógenos, se deberían validar las condiciones mencionadas en cada caso de uso. Preocupa que se entienda al leer este párrafo que sin establecer parámetros específicos mínimos de temperatura y tiempo de congelación y almacenamiento, se use la congelación como un método de reducción de los patógenos.	**Uruguay**
Paragraph 74	
74. Any ~~practice~~ practice, or combination of practices, selected to reduce/inactivate pathogenic *Vibrio* spp. in seafood or control/minimize the growth of pathogenic *Vibrio* spp. should be adequately validated to ensure that the process is effective. Such validation should be performed according to the Guidelines for the Validation of the Food Safety Control Measures (CXG 69-2008). Adding of commas	**Canada**
74. Any practice or combination of practices selected to reduce/inactivate pathogenic *Vibrio* spp. in seafood or control/minimize the growth of pathogenic *Vibrio* spp. should be adequately validated to ensure that the process is effective. Such validation should be performed according to the Guidelines for the Validation of the Food Safety Control Measures (CXG 69-2008).	**New Zealand**

Change: Could put cl 74 first and use cl 73 as an example	
74. Cualquier práctica o combinación de prácticas seleccionadas para reducir o inactivar las especies patógenas de ~~Vibrio~~ *Vibrio* en los alimentos de origen marino o controlar o reducir al mínimo la proliferación de las especies patógenas de ~~Vibrio~~*Vibrio*, debería ser validada adecuadamente para asegurar que el proceso sea efectivo. Dicha validación debería realizarse de conformidad con las *Directrices del Codex para la validación de medidas de control de la inocuidad de los* ~~*alimentos*~~ *alimentos* (CXG 69-2008). "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 76	
76. Los alimentos de origen marino destinados para su consumo crudo deberían almacenarse en capas delgadas, además de estar rodeadas de cantidades suficientes de hielo finamente picado o una mezcla de hielo y agua potable o limpia. Los pescados y mariscos vivos deberían ser almacenados a la temperatura más baja tolerada por las especies (consulte la Sección 9 del *Código de prácticas para el pescado y los productos pesqueros* [CXC 52-2003]). As stated above (sec .63), preferably below 5ºC. En coherencia con lo indicado en la sección 63	**Colombia**
76. Seafood intended for raw consumption should be stored in shallow layers and surrounded by sufficient quantities of finely crushed ice or with a mixture of ice and potable or clean water. Live fish and shellfish should be stored at the lowest temperature tolerable for the species (Refer to Section 9 of the *Code of Practice for Fish and Fisher Products* (CXC 52-2003)). Clean water does not guarantee the safety of the food, hence the need to maintain use of potable water for sea food meant for raw consumption	**Zambia**
5.5 Water	
5.5 Water Similar to its comments on paragraph 39, the EUMS consider that this section should contain a reference to CXG 100-2023, in particular the decision tree in Figure 4 of Annex II (subject to progress in the adoption steps of this Annex II).	**European Union**
Question to EWG members 9	
Se propone mantener las 3 subsecciones para el agua en el presente documento.	**Colombia**
Shouldn't need separate subsections for water. No special requirements for water, and the reuse of water Annex keeps referring to Vibrio if in incoming process water. One section with reference to Section 13.3 of CXG 1-1969 and Annex II on Fishery Products of Guidelines for the Safe Use and Reuse of Water in Food Production and Processing	**New Zealand**
Las presidencias propusieron mantener estas tres subsecciones para el agua y esperar el debate sobre la armonización con el texto de CXG 1-1969, así como la elaboración del Anexo II sobre los productos pesqueros de las Directrices para el uso y la reutilización inocuos del agua en la producción y elaboración de alimentos. Uruguay esta de acuerdo con esto.	**Uruguay**
5.6 Management and supervision	
Kenya proposes the deletion of section 5.6 on management and supervision since the subsection beneath it, has been deleted	**Kenya**
Paragraph 88	

88. Records should show information regarding the control measures ~~monitoring~~being monitored, for example time and temperature, at key process steps for mitigation of pathogenic *Vibrio*. Suggest adding time also.	**Canada**
SECTION VIII – TRANSPORTATION	
Transportation is an integral step in the food chain and temperature during this period should be as low as possible and should be controlled, monitored and recorded where appropriate. Use of appropriate transportation means should be included in text.	**Zambia**
SECTION IX - PRODUCT INFORMATION AND CONSUMER AWARENESS	
Paragraph 96	
Refer to the ~~General Standard for the Labelling of Prepackaged Foods~~ *General Standard for the Labelling of Prepackaged Foods* (CODEX STAN 1-1985). Where appropriate, product labels should include information on safe handling practices and storage recommendations. Italicize the document title. Modify CODEX STAN to the new nomenclature CXS throughout the document.	**Canada**
Paragraph 97	
In addition, countries should give consideration to labelling of unpackaged live or raw seafood, so that consumers are adequately informed with respect to the safety and true nature (alive or not alive) of these products. In particular, seafood that is at a high risk of being contaminated with pathogenic *Vibrio* spp., should be labelled to alert at-risk consumers to avoid or cook these products, in line with the legislation in the countries where these products are retailed or sold. Any treatment (e.g., heat treatment) and storage condition, that is to be applied to the product should be mentioned in the labelling if consumers would be misled by its omission.	**Canada**
Además, los países deberían tomar en consideración el etiquetado de alimentos de origen marino vivos y crudos no envasados, para que los consumidores estén informados adecuadamente, con respecto a la inocuidad y verdadera naturaleza (ya sea vivos o no) de estos productos. En especial, los alimentos de origen marino que tengan un riesgo mayor de estar contaminados con las especies patógenas de *Vibrio*, deberían etiquetarse para alertar a los consumidores ~~en~~ sobre el riesgo que implica el consumo crudo de dichos productos, a fin de que eviten su consumo en ese estado o ~~cocinen dichos productos~~los cocinen, de conformidad con la legislación de los países donde estos productos estarán a la venta o serán comercializados al por menor. Todo tratamiento (por ejemplo, térmico) y condiciones de almacenamiento a ~~al~~ los que se haya sometido el producto debería mencionarse en la etiqueta si se considera que los consumidores puedan ser inducidos a error por dicha omisión. Se sugiere mejorar la redacción	**Uruguay**
Además, los países deberían tomar en consideración el etiquetado de alimentos de origen marino vivos y crudos no envasados, para que los consumidores estén informados adecuadamente, con respecto a la inocuidad y verdadera naturaleza (ya sea vivos o no) de estos productos. En especial, los alimentos de origen marino que tengan un riesgo mayor de estar contaminados con las especies patógenas de *Vibrio*, deberían etiquetarse para alertar a los consumidores en riesgo a fin de que eviten o cocinen dichos productos, de conformidad con la legislación de los países donde estos productos estarán a la venta o serán comercializados al por menor. Todo tratamiento (por ejemplo,	**Venezuela (Bolivarian Republic of)**

térmico) y condiciones de almacenamiento a ~~al~~ los que se haya sometido el producto debería mencionarse en la etiqueta si se considera que los consumidores puedan ser inducidos a error por dicha omisión. Se sugiere considerar la armonización de los aspectos de etiquetado sugeridos	
Paragraph 99	
To educate them on household practices and ~~behaviours~~ behaviours, as indicated in Five Keys to Safer Food ~~(WHO) "that would specifically~~ (WHO), to keep the numbers of pathogenic *Vibrio* spp. that may be present in ~~foods, to~~ foods as low ~~a level~~ as possible and to minimize the potential of cross-contamination from seafood~~, to hands of~~ ~~via~~from food handlers, ~~and then from hands to other foods,~~ or from ~~from seafood to~~ utensils (e.g., cutting board), ~~and then from utensils~~ to other foods by:	**Canada**
promptly refrigerating leftover seafood in shallow containers ~~that encourage~~ for rapid and even cooling;	**Canada**
lavar y desinfectar las manos, utensilios y ~~equipo~~ equipos usado siempre que se manipulen los alimentos crudos de origen marino; y	**Uruguay**
using separate~~ing~~ utensils and equipment ~~used~~ for raw and cooked seafood, ~~from those use for finished product,~~ where appropriate. Change: Remove words Reason: Where would this not be appropriate?	**New Zealand**
using separate~~ing~~ utensils and equipment ~~used~~ for raw and cooked seafood, ~~from those use for finished product,~~ where appropriate. For sea foods that require cooking, thorough cooking should be advised, cooked food should be kept at certain temperature	**Zambia**
Para ayudarlos a tomar decisiones con conocimiento de causa acerca de la compra, almacenamiento, etiquetado de la vida útil y el consumo apropiado de ciertos alimentos crudos de origen marino, que son factores importantes identificados en las evaluaciones de riesgos pertinentes y otros estudios, ~~debiendo tomarse en consideración~~ se debería considerar las condiciones regionales específicas y los hábitos de consumo particulares.	**Uruguay**
9.4.1 Special attention to susceptible subpopulations	
9.4.1 Atención Especial a las subpoblaciones susceptibles "Atención especial a las subpoblaciones susceptibles". Quitar mayúscula inicial a la palabra "Especial".	**Venezuela (Bolivarian Republic of)**
Paragraph 100	
Liver disease is a prominent risk factor for human infection with pathogenic *Vibrio* spp., especially *V. vulnificus*. Additional risk factors include diabetes, haemochromatosis and HIV/AIDSs.[16] ~~Subpopulations with increased susceptibility should follow the advice below:~~	**Canada**
Handle shellfish safely to avoid injury from knives and ~~shell~~shells.	**Canada**
Handle shellfish safely to avoid injury from knives and shell. Should be a standalone bullet not a sub bullet for susceptible popns.	**New Zealand**

Handle shellfish safely to avoid V. vulnificus infection from injuries through other routes other than food ingestion (e.g injury from knives and ~~shell~~shell). The Philippines proposes the revised text to convey a clearer detail on the advice to be followed for subpopulations with increased susceptibility by explaining that other routes may also cause V. vulnificus infection.	**Philippines**
NOTE	
NOTE: The 3rd practice is against V. vulnificus infection through open wounds, not relating to foodborne illness. Further discussion may be necessary as to whether it should be included in the consumer education part of this guideline. The EUMS support to keep this recommendation here	**European Union**
NOTA: La tercera práctica es contra la infección por V. vulnificus *a través de heridas abiertas, no relacionada con enfermedades transmitidas por los alimentos. Puede ser necesario debatir más a fondo si se debería incorporar en la parte de estas directrices relativa a la sensibilización de los consumidores.* Uruguay considera importante incorporarla en esta sección.	**Uruguay**
SECTION X – TRAINING AND COMPETENCE	
Paragraph 102	
La industria (pescadores, productores primarios, fabricantes, distribuidores, minoristas y establecimientos o instituciones proveedoras de servicios alimenticios) y las asociaciones de comercio juegan un papel muy importante al proveer instrucciones específicas y/o capacitación a empleados para el control de las especies patógenas de ~~Vibrio~~*Vibrio*. Se debiera prestar una consideración especial a las posibles diferencias en la prevalencia de especies patógenas de ~~Vibrio~~ *Vibrio* en las zonas de cosecha y a varias técnicas de pesca. Se sugiere incluir información sobre las posibles diferencias en la prevalencia de especies patógenas de Vibrio ("Vidrio " debería estar en letra itálica) respecto a las técnicas de pesca.	**Venezuela (Bolivarian Republic of)**
Paragraph 103	
la naturaleza de las especies patógenas de ~~Vibrio~~*Vibrio*, a saber: *V. parahaemolyticus*, *V. cholerae* ~~toxigénico~~ y *V. vulnificus*, sus sitios de refugio, y su resistencia a las distintas condiciones ambientales, para que puedan realizar un análisis de peligros apropiado para sus productos; "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
medidas de prevención y control para reducir el riesgo de la presencia de las especies patógenas de *Vibrio* asociadas con los alimentos de origen marino, durante la cosecha, procesamiento, distribución, comercialización, uso y almacenamiento, para prevenir la contaminación cruzada y minimizar su crecimiento; y Se propone incluir las medidas de prevención.	**Colombia**
SECTION XI – LABORATORY ANALYSIS CRITERIA FOR DETECTION AND ENUMERATION OF PATHOGENIC VIBRIO SPP.	
Section XI - on laboratory analysis is a highly variable and complex area. Australia considers redrafting is necessary to improve this guidance. The title could be amended to, “Selection and application of methods for detection and enumeration of pathogenic Vibrio spp” to better explain what the section addresses. We further suggest the section could be divided into three sub-sections composed of Purpose of	**Australia**

analytical testing; Choice of analytical method; and Types of analytical methods. These could be drafted as follows: SECTION XI – SELECTION AND APPLICATION OF METHODS FOR DETECTION AND ENUMERATION OF PATHOGENIC VIBRIO SPP. 10.1 Purpose of analytical testing 106. The purpose of analytical testing for bacterial foodborne pathogens, including pathogenic Vibrio spp, can be divided into the following categories: • harvest area monitoring (to assist with establishing harvest area Vibrio spp management plans, where Vibrio abundance can be linked to specific harvest area water temperatures, salinity or other parameters, as determined by the assessment of the area) • post-harvest process verification including end product monitoring (as part of a quality assurance program) • public health investigation following an incident. Sampling plans and design must consider the purpose for which it will be used. 10.2 Choice of analytical method 107. The choice of analytical method should reflect: • the type of sample to be tested; • the purpose for which the data collected will be used (as per p106); • the desired level of sensitivity and test frequency • whether a presence/absence or quantitative test is more appropriate • whether detections of sub-populations (e.g. virulence markers) is necessary • whether typing (e.g serotype) of pathogenic strains is required 10.3 Types of analytical methods 108. Suitable analytical methods include direct plating, selective enrichment, most probable number (MPN) assay, robe-hybridization on plate assay, conventional PCR, quantitative PCR, Loop mediated isothermal amplification assay, etc. 13. 109. Additional guidance on selecting analytical methods is available in FAO and WHO, 2016, Selection and application of methods for the detection and enumeration of human pathogenic halophilic Vibrio spp. in seafood (Microbiological Risk Assessment series No. 2213) 110. Research on virulence factors and virulence related genes of V. parahaemolyticus, V. vulnificus, and V. cholerae is ongoing, and these genes can be used as PCR targets to assess the pathogenicity of the bacterial strains.	
Paragraph 107	
The target of analysis for pathogenic *Vibrio* spp. are seafood and environmental samples (water, soil, sewage) from habitats or harvest area, etc. Change: include words "....harvest area or clinical samples etc." Reason: Also include clinical samples if used for public health investigations?	**New Zealand**
Paragraph 108	

Include public health investigations?	**New Zealand**
Although it differs depending on the end ~~uses~~user, the purpose of the analysis is to determine whether the product conforms to the standards of the country or region, to demonstrate the reduction of pathogenic *Vibrio* spp. using post-harvest process, to continuously ~~investigate~~ monitor the environment, and to conduct risk assessment at the national, regional, or global level. Editorial revision from “end uses” to “end user” and suggest to use the term “monitor” instead of “investigate” as it is more appropriate in the context of the text.	**Philippines**
Paragraph 109	
The analysis methods include direct plating, selective enrichment, most probable number (MPN) assay, robe-hybridization on plate assay, conventional PCR, quantitative PCR, Loop mediated isothermal amplification assay, etc. Useful guidance has been provided for the selection of appropriate analytical method depending on the potential end use of the obtained data[13]. The analysis methods include direct plating, selective enrichment, most probable number (MPN) assay, robe-hybridization on plate assay, conventional PCR, quantitative PCR, Loop mediated isothermal amplification assay, etc. Useful guidance has been provided for the selection of appropriate analytical method depending on the potential end use of the obtained data13. A list of commonly used microbiological and molecular methods applied in the isolation and characterization of Vibrio parhaemolyticus and Vibrio vulnificus can be consulted in MICROBIOLOGICAL RISK ASSESSMENT SERIES 35 MEETING REPORT* * FAO and WHO, 2020, Advances in science and risk assessment tools for Vibrio parahaemolyticus and V. vulnificus associated with seafood (Microbiological Risk Assessment series, No. 35) (Section 3.5) Rationale: it is proposed to refer to section 3.5 of the MICROBIOLOGICAL RISK ASSESSMENT SERIES 35 MEETING REPORT as it provides a table with the commonly used methods	**Argentina**
Analytical ~~The analysis~~ methods include direct plating, selective enrichment, most probable number (MPN) assay, robe-hybridization on plate assay, conventional PCR, quantitative PCR, Loop mediated isothermal amplification (LAMP) assay, etc. Useful guidance has been provided for the selection of appropriate analytical ~~method~~ method(s) depending on the potential end use of the obtained data[13].	**Canada**
The analysis methods include direct plating, selective enrichment, most probable number (MPN) assay, robe-hybridization on plate assay, conventional PCR, quantitative PCR, Loop mediated isothermal amplification assay, etc. Useful guidance has been provided for the selection of appropriate analytical method depending on the potential end use of the obtained data[13]. Change: Spelling "probe-hybridization..." Change: ..."quantitative real-time PCR..."	**New Zealand**
Los métodos de análisis incluyen el cultivo directo, el enriquecimiento selectivo, el ensayo del número más probable (NMP), el ensayo de hibridación en placa, la PCR convencional, la PCR cuantitativa, el ensayo de amplificación isotérmica mediada por bucle, etc. Se han proporcionado orientaciones útiles para la selección del método analítico adecuado en función del posible uso final de los datos obtenidos[13]. Observamos que falta la nota al pie: 13- FAO y OMS, 2016, Selection and application of methods for the detection and enumeration of humanpathogenic halophilic Vibrio spp. in seafood (Selección y aplicación de métodos para la detección y el recuento de Vibrio spp. halófilos patógenos humanos en los alimentos de origen marino) (Serie de Evaluación de Riesgos Microbiológicos n.º 22). Disponible solo en inglés	**Uruguay**

Paragraph 110	
It is possible to genetically analyze the characteristics of bacterial strains between food and clinical isolates, using serotyping and genotyping methods to investigate the possibility that the strains are the same.	**Canada**
It is possible to genetically analyze the characteristics of bacterial strains between food and clinical isolates, and investigate the possibility that the strains are the same. Change: Reword: Genetic analyses can be performed to compare food and clinical isolates for source tracking and source attribution	**New Zealand**
ANNEX ON THE CONTROL MEASURES FOR VIBRIO PARAHAEMOLYTICUS AND VIBRIO VULNIFICUS IN BIVALVE MOLLUSCS	
The EUMS consider as fundamental the discussion about the laboratory methods, including the definition of possible limits (that could also be the absence) for Vibrio parahaemolyticus and Vibrio vulnificus in Bivalve Molluscs. This could take the form of a guidance document or good practice document that outline and describe in detail the most appropriate methods applicable, for what additional advice could be needed. The EUMS also consider it opportune to repeat the reference to CXG 100-2023, in particular the decision trees in Figures 3 of and 4 of Annex II (subject to progress in the adoption steps of this Annex II).	**European Union**
SECTION I – OBJECTIVES	
Paragraph 2	
The purpose of this Annex is to provide guidance on control measures that minimize the risk arising from the presence of pathogenic *V. parahaemolyticus* and *V. vulnificus* in bivalve molluscs. It deals with the means to minimize and/or prevent the introduction/contamination and/or the growth of these pathogens, and adequate partial treatment[1818] of bivalve molluscs before consumption. Control measures required for these pathogens are similar but not the same to the extent that they have different characteristics ~~on~~ for ~~the~~ growth and survival. The control measures outlined in this Annex reflects these differences, where they exist. This Annex further provides information that may be of interest to regulatory authorities, the food industry, consumers, and other interested parties.	**Canada**
The purpose of this Annex is to provide guidance on control measures that minimize the risk arising from the presence of pathogenic *V. parahaemolyticus* and *V. vulnificus* in bivalve molluscs. It deals with the means to minimize and/or prevent the introduction/contamination and/or the growth of these pathogens, and adequate partial treatment[1818] of bivalve molluscs before consumption. Control measures required for these pathogens are similar but not the same to the extent that they have different characteristics on ~~the~~ growth and survival. The control measures outlined in this Annex reflects these differences, where they exist. This Annex further provides information that may be of interest to regulatory authorities, the food industry, consumers, and other interested parties. Unsure about the intent of this sentence and suggest rewording	**New Zealand**
The purpose of this Annex is to provide guidance on control measures that minimize the risk arising from the presence of pathogenic *V. parahaemolyticus* and *V. vulnificus* in bivalve molluscs. It deals with the means to minimize and/or prevent the introduction/contamination and/or the growth of these pathogens, and adequate partial treatment[1818] of bivalve molluscs before consumption. Control measures required for these pathogens are similar but not the same to the extent that they have different characteristics on ~~the~~ growth and survival. The control measures outlined in this Annex reflects these differences, where they exist. This Annex further provides information that may be of interest to regulatory authorities, the food industry, consumers, and other interested parties. Duplication of reference number.	**ICUMSA**
[18] ~~Including cooking.~~ Duplication of reference numbers from 18 to 25.	**ICUMSA**

SECTION II – SCOPE, DEFINITION AND USE OF THE DOCUMENT	
Paragraph 4	
En este ~~anexo~~ anexo, se destacan las medidas de control clave que influyen en la introducción/contaminación de *V. parahaemolyticus* y *V. vulnificus* en los moluscos bivalvos y que reducen al mínimo su concentración y, por ende, el riesgo de las enfermedades de transmisión alimentaria causadas por estos patógenos. Colocar coma (,) después de "En este anexo"	**Venezuela (Bolivarian Republic of)**
Paragraph 5	
This Annex provides guidance applicable throughout the food chain, from primary production through to final consumption of bivalve molluscs and particular guidance on post-harvest processing. Controls measures presented in Part I apply to live and raw bivalve molluscs (including those that receive post-harvest processing), while those in Part II apply to bivalve molluscs consumed after partial treatment[19][19]. Duplication of reference number.	**ICUMSA**
Paragraph 6	
Las definiciones incluidas en los *Principios generales de higiene de los alimentos* (CXC 1-1969), el *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de* ~~Vibrio~~ *Vibrio en los alimentos de origen marino* y las definiciones de producción de los moluscos bivalvos vivos y los moluscos bivalvos crudos presentadas en la *Norma para los moluscos bivalvos vivos y los moluscos bivalvos crudos* (CXS 292-2008). "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Procesamiento posterior a la cosecha: los procesos (p. ej., tratamiento de alta presión o tratamiento térmico leve) o los tratamientos (p. ej., congelación) cuya finalidad sea reducir o limitar considerablemente mas no necesariamente eliminar por completo la presencia de *V. parahaemolyticus* y *V. vulnificus* reteniendo prácticamente las características sensoriales de los moluscos bivalvos vivos (Sección 7.7 del *Código de prácticas para el pescado y los productos pesqueros* [CXC 52-2003]). Respecto a la definición "Procesamiento posterior a la cosecha", no queda claro si el término "cosecha" se emplea porque la definición solo aplica a moluscos bivalvos provenientes de cultivos acuícolas.	**Venezuela (Bolivarian Republic of)**
Paragraph 7	
7. This Annex is supplemental to and should be used in conjunction ~~with~~ with, the *General Principles of Food Hygiene* (CXC 1-1969), the *Code of Practice for Fish and Fishery Products* (CXC 52-2003), Hygiene section of the *Standard for Live and Raw Bivalve Molluscs* (CXS~~ODEX STAN~~ 292-2008) and the *Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic Vibrio Species in Seafood*. This Annex may require modifications and amendments in use, taking into account such factors as regional differences in the prevalence of pathogenic strains of *V. parahaemolyticus* and *V. vulnificus* and the epidemiological data, including the susceptibility of the population. Added a comma	**Canada**
PART I: BIVALVE MOLLUSCS CONSUMED LIVE AND RAW	

SECTION III - PRIMARY PRODUCTION	
3.1 Environmental ~~hygiene~~ control Consider aligning the title with the GPFH.	**Canada**
Paragraph 8	
Véase la Sección ~~3.1~~8.1 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección 3.1 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de* ~~Vibrio~~*Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 9	
The control measures described in this section generally apply to pre-harvest environmental conditions and practices during and immediately following harvest~~, typically while under the control of the harvester~~. Effective control measures for *V. parahaemolyticus* and *V. vulnificus* will typically require an evaluation in terms of the risk associated with environmental factors in the harvesting area and harvesting practices based on epidemiology and environmental conditions (i.e., air and water temperature and salinity). An important element in estimating risk is that *V. parahaemolyticus* grows faster and at colder temperatures than *V. vulnificus*. Predictive tools using these environmental monitoring parameters and growth rates as inputs have been elaborated based on the FAO/WHO risk assessments and, when validated, may be used to estimate corresponding *V. parahaemolyticus* and *V. vulnificus* levels and risk. The predictive ability can be improved by incorporating local data and considering additional factors such as hydrodynamic effects (occurrence of tidal waves, rainfall) and sunlight. In addition to seawater temperature and salinity, some additional abiotic and biotic factors have been identified modulating the presence and abundance of *V. vulnificus* and *V. parahaemolyticus* in coastal water around the world. However, the effects of these variables are not conclusive and, in some cases, have been reported in a particular study affecting a specific area. In addition, the presence of chlorophyll, turbidity, high water temperature, and the bacteriophages are known to be related to Vibrio abundance[2020]. Rationale: The control measures as identified after the sentence are not completely under the control of the harvester, but also under the control of the Competent authorities that classify the areas. This transfer of responsibility cannot be accepted by the harvesters.	**European Union**
The control measures described in this section generally apply to pre-harvest environmental conditions and practices during and immediately following harvest, typically while under the control of the harvester. Effective control measures for *V. parahaemolyticus* and *V. vulnificus* will typically require an evaluation in terms of the risk associated with environmental factors in the harvesting area and harvesting practices based on epidemiology and environmental conditions (i.e., air and water temperature and salinity). An important element in estimating risk is that *V. parahaemolyticus* grows faster and at colder temperatures than *V. vulnificus*. Predictive tools using these environmental monitoring parameters and growth rates as inputs have been elaborated based on the FAO/WHO risk assessments and, when validated, may be used to estimate corresponding *V. parahaemolyticus* and *V. vulnificus* levels and risk. The predictive ability can be improved by incorporating local data and considering additional factors such as hydrodynamic effects (occurrence of tidal waves, rainfall) and sunlight. In addition to seawater temperature and salinity, some additional abiotic and biotic factors have been identified modulating the presence and abundance of *V. vulnificus* and *V. parahaemolyticus* in coastal water around the world. However, the effects of these variables are not conclusive and, in some cases, have been reported in a particular study affecting a specific area. In addition, the presence of chlorophyll, turbidity, high water temperature, and the bacteriophages are known to be related to Vibrio abundance[2020].	**New Zealand**

More discussion about why monitoring for total Vp is not useful needed? See comments in #145 Change: Remove words Reason: Temp already mentioned as key variable	
The control measures described in this section generally apply to pre-harvest environmental conditions and practices during and immediately following harvest, typically while under the control of the harvester. Effective control measures for *V. parahaemolyticus* and *V. vulnificus* will typically require an evaluation in terms of the risk associated with environmental factors in the harvesting area and harvesting practices based on epidemiology and environmental conditions (i.e., air and water temperature and salinity). An important element in estimating risk is that *V. parahaemolyticus* grows faster and at colder temperatures than *V. vulnificus*. Predictive tools using these environmental monitoring parameters and growth rates as inputs have been elaborated based on the FAO/WHO risk assessments and, when validated, may be used to estimate corresponding *V. parahaemolyticus* and *V. vulnificus* levels and risk. The predictive ability can be improved by incorporating local data and considering additional factors such as hydrodynamic effects (occurrence of tidal waves, rainfall) and sunlight. In addition to seawater temperature and salinity, some additional abiotic and biotic factors have been identified modulating the presence and abundance of *V. vulnificus* and *V. parahaemolyticus* in coastal water around the world. However, the effects of these variables are not conclusive and, in some cases, have been reported in a particular study affecting a specific area. ~~In addition, the~~ The presence of chlorophyll, turbidity, high water temperature, and the bacteriophages are known to be related to Vibrio abundance[2020]. For clarity	**United Kingdom**
The control measures described in this section generally apply to pre-harvest environmental conditions and practices during and immediately following harvest, typically while under the control of the harvester. Effective control measures for *V. parahaemolyticus* and *V. vulnificus* will typically require an evaluation in terms of the risk associated with environmental factors in the harvesting area and harvesting practices based on epidemiology and environmental conditions (i.e., air and water temperature and salinity). An important element in estimating risk is that *V. parahaemolyticus* grows faster and at colder temperatures than *V. vulnificus*. Predictive tools using these environmental monitoring parameters and growth rates as inputs have been elaborated based on the FAO/WHO risk assessments and, when validated, may be used to estimate corresponding *V. parahaemolyticus* and *V. vulnificus* levels and risk. The predictive ability can be improved by incorporating local data and considering additional factors such as hydrodynamic effects (occurrence of tidal waves, rainfall) and sunlight. In addition to seawater temperature and salinity, some additional abiotic and biotic factors have been identified modulating the presence and abundance of *V. vulnificus* and *V. parahaemolyticus* in coastal water around the world. However, the effects of these variables are not conclusive and, in some cases, have been reported in a particular study affecting a specific area. In addition, the presence of chlorophyll, turbidity, high water temperature, and the bacteriophages are known to be related to Vibrio abundance[2020]. Font size different to preceeding section and the same error occurs for the following three sections. Duplication of reference number.	**ICUMSA**
Paragraph 10	
In cases where predictive models are used to estimate the concentration and risks of pathogenic *Vibrio* spp. in seawater and/or bivalve molluscs based on air and water temperatures and/or salinity, their accuracy would be enhanced by incorporating local data on levels of total and pathogenic *V. parahaemolyticus* and *V. vulnificus* and growth in local bivalve species. Factors such as hydrodynamic effects (e.g., currents, tides, hurricanes and rainfall) and sunlight influence the levels of *Vibrio* spp. ~~JEMRA20 4.5.1.2 states that the *V. parahaemolyticus* prediction model as it currently exists is a linear model and therefore may be useful to estimate relative change in risk (percent reduction in~~	**Canada**

~~risk) for different countries with more virulent strains, provided that the ranges of doses in that country are much less than the range of virulent strains. in risk (percent reduction in risk) for different countries with more virulent strains, provided that the ranges of doses in that country are much less than~~ the ID50 for the more virulent strain (i.e., in the linear range of the dose response relationship). For *V. vulnificus*, the FAO/WHO *V. vulnificus* calculation tool is unlikely to be applicable to a wider area outside the U.S. because of different environmental, fishing, and post-harvest parameters. More importantly, however, the basis for the dose-response relationship is derived from rice epidemiological data coupled with estimated exposure levels. It has also been shown that certain shellfish species may influence risk estimates. The dose response model used in the predictive tool may need modifications based on epidemiology, as regional differences exist in the prevalence of pathogenic strains of *V. parahaemolyticus* and *V. vulnificus* including attack rate relative to exposure to *V. parahaemolyticus* strains occurred in those areas concerned[21~~21~~]. The last sentence in the paragraph is not clear. Suggest to modify this sentence to improve readability.	
In cases where predictive models are used to estimate the concentration and risks of pathogenic *Vibrio* spp. in seawater and/or bivalve molluscs based on air and water temperatures and/or salinity, their accuracy would be enhanced by incorporating local data on levels of total and pathogenic *V. parahaemolyticus* and *V. vulnificus* and growth in local bivalve species. Factors such as hydrodynamic effects (e.g., currents, tides, hurricanes and rainfall) and sunlight influence the levels of *Vibrio* spp. ~~JEMRA20 4.5.1.2 states that the *V. parahaemolyticus* prediction model as it currently exists is a linear model and therefore may be useful to estimate relative change in risk (percent reduction in risk) for different countries with more virulent strains, provided that the ranges of doses in that country are much less than the range of virulent strains. in risk (percent reduction in risk) for different countries with more virulent strains, provided that the ranges of doses in that country are much less than~~ the ID50 for the more virulent strain (i.e., in the linear range of the dose response relationship). ~~For *V. vulnificus*, the FAO/WHO *V. vulnificus* calculation tool is unlikely to be applicable to a wider area outside the U.S. because of different environmental, fishing, and post-harvest parameters. More importantly, however, the basis for the dose-response relationship is derived from rice epidemiological data coupled with estimated exposure levels. It has also been shown that certain shellfish species may influence risk estimates.~~ The dose response model used in the predictive tool may need modifications based on epidemiology, as regional differences exist in the prevalence of pathogenic strains of *V. parahaemolyticus* and *V. vulnificus* including attack rate relative to exposure to *V. parahaemolyticus* strains occurred in those areas concerned[21~~21~~]. Duplication of reference number.	**ICUMSA**
Paragraph 11	
Monitoring of bivalve molluscs ~~at harvest~~ for the levels of total *V. vulnificus* and total and pathogenic *V. parahaemolyticus* should be conducted periodically overtime ~~for lengthy period~~ to determine the regional and seasonal variation. Prevalence of pathogenic strains of *V. parahaemolyticus* and *V. vulnificus* and the epidemiological data, including the susceptibility of the population, should be considered[2222]. This information and some factors articulated in paragraph 15 are useful for model inputs and evaluation of model outputs ~~and~~ as well as for the application of appropriate controls. Consider if “total” Vp should be defined.	**Canada**

Monitoring of bivalve molluscs ~~at harvest~~ for the levels of total *V. vulnificus* and total and pathogenic *V. parahaemolyticus* should be conducted for lengthy period to determine the regional and seasonal variation. Prevalence of pathogenic strains of *V. parahaemolyticus* and *V. vulnificus* and the epidemiological data, including the susceptibility of the population, should be considered[22][22]. This information and some factors articulated in paragraph 15 are useful for model inputs and evaluation of model outputs and application of appropriate controls. Duplication of reference number.	**ICUMSA**
Paragraph 12	
~~Additionally, there are some indications that *Vibrio* spp. can be introduced into a harvest area through the release of ballast water. Therefore,~~ ~~t~~The impact of ballast discharge in or around ~~the~~ harvesting ~~area~~ areas should be controlled ~~regarding~~ due to potential for contamination by a range of hazards, including the presence of *Vibrio* spp., especially in areas that are in close proximity to international shipping lanes.	**Canada**
Paragraph 13	
Salinity ranges and optima are different for *V. parahaemolyticus* and *V. vulnificus*. Environmental and epidemiological data indicate that there are low *V. parahaemolyticus* and *V. vulnificus* levels and few cases of illnesses ~~are~~ associated with bivalve molluscs when salinity exceeds 35 ppt (g/l) and 30 ppt (g/l), respectively. The effects of salinity and temperature on abundance of Vibrio differ depending on the range of fluctuations in water temperature and salinity throughout the year[24]~~24~~.	**Canada**
Water temperatures representative of harvesting conditions. Water temperatures below 15°C[23][23] for *V. parahaemolyticus* and below 20°C for *V. vulnificus* have generally not been historically associated with illnesses; Duplication of reference number.	**ICUMSA**
Salinity ranges and optima are different for *V. parahaemolyticus* and *V. vulnificus*. Environmental and epidemiological data indicate low *V. parahaemolyticus* and *V. vulnificus* levels and few cases of illnesses are associated with bivalve molluscs when salinity exceeds 35 ppt (g/l) and 30 ppt (g/l), respectively. The effects of salinity and temperature on abundance of Vibrio differ depending on the range of fluctuations in water temperature and salinity throughout the year[24][24]. Duplication of reference number.	**ICUMSA**
Paragraph 16	
Where possible, ~~sink~~ cultivate bivalve molluscs below the thermocline where the growth of pathogenic *Vibrio* spp. should not occur For clarity	**United Kingdom**
Restrict the time from harvest to refrigeration	**United Kingdom**
Paragraph 17	
Bivalve molluscs destined to be consumed live or untreated raw should be handled separately from those harvested in other ~~area~~ areas destined for post-harvest processing or other treatment to avoid ~~cross contamination~~cross-contamination.	**Canada**
Bivalve molluscs destined to be consumed live or untreated raw should be handled separately from those harvested in other area destined for post-harvest processing or other treatment to avoid cross contamination.	**New Zealand**

Change: include words "...contamination, where stricter parameters are applied to the former." Separation not needed based on intended purpose if the same (harvest) controls have been used.	
Bivalve molluscs destined to be consumed live or untreated raw should be handled separately from those harvested in other ~~area~~ areas destined for post-harvest processing or other treatment to avoid cross contamination.	**United Kingdom**
Bivalve molluscs destined to be consumed live or untreated raw should be handled separately from those harvested in other area destined for post-harvest processing or other treatment to avoid cross contamination. Font size different to preceeding section and the same error occurs in the following section	**ICUMSA**
Paragraph 18	
During handling, storage and transport of harvested bivalve molluscs, the following control measures should be applied as ~~necessary~~ necessary, based upon the factors identified in Section 3.1. It is important that any control for *V. parahaemolyticus* and/or *V. vulnificus* is not less than that required for the control of any other pathogenic organisms that may be present in bivalve molluscs.	**Canada**
Bivalve molluscs are to be transported at the lowest temperature that minimizes growth of *V. parahaemolyticus* and *V. vulnificus*. The time between refrigeration and reaching a temperature that does not support growth of *V. parahaemolyticus* and *V. vulnificus* should be minimized when the temperature of the bivalve molluscs exceeds the minimum growth temperature for pathogenic ~~vibrios~~*Vibrio* spp., and the time between harvest and raw consumption should be limited appropriately or the product should undergo additional treatment to reduce pathogenic *Vibrio* levels. Special attention should be paid to maintaining the characteristics of bivalve molluscs to be consumed live following Section 7.3 of the *Code of Practice for Fish and Fishery Products* (CXC 52-2003). Change: move to earlier in the bullet point.	**New Zealand**
Bivalve molluscs are to be transported at the lowest temperature that minimizes growth of *V. parahaemolyticus* and *V. vulnificus*. The time between refrigeration and reaching a temperature that does not support growth of *V. parahaemolyticus* and *V. vulnificus* should be minimized when the temperature of the bivalve molluscs exceeds the minimum growth temperature for pathogenic ~~vibrios~~*Vibrio* spp., and the time between harvest and raw consumption should be limited appropriately or the product should undergo additional treatment to reduce pathogenic *Vibrio* levels. Special attention should be paid to maintaining the characteristics of bivalve molluscs to be consumed live following Section 7.3 of the *Code of Practice for Fish and Fishery Products* (CXC 52-2003). Change: remove words	**New Zealand**
Bivalve molluscs are to be transported at the lowest temperature that minimizes growth of *V. parahaemolyticus* and *V. vulnificus*. The time between refrigeration and reaching a temperature that does not support growth of *V. parahaemolyticus* and *V. vulnificus* should be minimized when the temperature of the bivalve molluscs exceeds the minimum growth temperature for pathogenic ~~vibrios~~*Vibrio* spp., and the time between harvest and raw consumption should be limited appropriately or the product should undergo additional treatment to reduce pathogenic *Vibrio* levels. Special attention should be paid to maintaining the characteristics of bivalve molluscs to be consumed live following Section 7.3 of the *Code of Practice for Fish and Fishery Products* (CXC 52-2003). Change: move last sentence to here: "and V. vulnificus whilst maintaining the characteristics of bivalve molluscs to be consumed live following Section 7.3 of the Code of Practice for Fish and Fishery Products (CXC 52-2003). The time between initiation of refrigeration...." Reason: May be clearer. Moved the point about maintaining in a live state earlier in the clause.	**New Zealand**

Anyone involved in the handling, storage or transport of bivalve molluscs should be educated in the relationship between temperature control and growth of *V. parahaemolyticus* and *V. vulnificus* and trained in proper handling, storage and transport. Change: include words "...in the harvest, handling..." Reason: Knowledge of harvesters is key.	**New Zealand**
SECTION IV - ESTABLISHMENT: DESIGN ~~AND~~ OF FACILITIES AND EQUIPMENT	
Paragraph 19	
Véase la Sección ~~III~~9 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección IV de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION V - CONTROL OF OPERATION	
Paragraph 20	
Véase la Sección ~~7.1~~13.1 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003), las *Directrices para la validación de medidas de control de la inocuidad de los alimentos* (CXG 69-2008) y la Sección 5.1 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 21	
The control measures described in this section generally apply to post-harvest handling and processing. Control of *V. parahaemolyticus* and *V. vulnificus* typically requires the stringent application of ~~Good Hygienic Practices~~ GHPs and other supportive programs. These prerequisite programs, together with HACCP, can provide a sound framework for the control of *V. parahaemolyticus* and *V. vulnificus* in bivalve molluscs.	**Canada**
The control measures described in this section generally apply to post-harvest handling and processing. Control of *V. parahaemolyticus* and *V. vulnificus* typically requires the stringent application of Good Hygienic Practices and other supportive programs. These prerequisite programs, together with HACCP, can provide a sound framework for the control of *V. parahaemolyticus* and *V. vulnificus* in bivalve molluscs. Font size different to preceeding section and the same error occurs in the following four sections.	**ICUMSA**
Paragraph 22	
Any control measures or practice selected to significantly reduce or limit but not necessarily completely eliminate *V. parahaemolyticus* and *V. vulnificus* in bivalve molluscs (e.g., freezing, high pressure and mild heating), should be adequately validated to ensure that the control measure is effective. ~~They should also be approved by the competent authority.~~ Such validated control measures/practices should be implemented under the HACCP system. *V. parahaemolyticus* is generally more resistant than *V. vulnificus* to any given treatment. Therefore, a process that is effective for *V. vulnificus* may not be as effective for *V. parahaemolyticus*. Rationale: An approval of the control measure will not be feasible neither for FBOs nor for CAs. GHP and HACCP is the responcibility of the FBO, and it is difficult to see how an approval of method or practice will improve the food safety	**Norway**
Paragraph 23	

Para 23. Refer to Section 4.1 of the *Code of Practice for Fish and Fishery Products* (CXC 52-2003). ~~Temperature~~ Time and temperature control to reduce the temperature to the point that *V. parahaemolyticus* and *V. vulnificus* do not grow should be used and maintained during processing operation and subsequently until consumption.	**Canada**
Paragraph 24	
Para 24. Bivalve molluscs destined to be consumed live or untreated raw should be distributed separately from those destined for post-harvest processing or other ~~treatment~~treatments.	**Canada**
Bivalve molluscs destined to be consumed live or untreated raw should be distributed separately from those destined for post-harvest processing or other treatment. Change: ....handled separately.." Reason: Separation not needed if all product has been processed to RTE st.	**New Zealand**
Paragraph 25	
Control measures should be in place to avoid cross contamination between bivalve molluscs destined to be consumed live or untreated raw and those harvested in other ~~area~~ areas destined for post-harvest processing or other treatment.	**Canada**
Control measures should be in place to avoid cross contamination between bivalve molluscs destined to be consumed live or untreated raw and those harvested in other area destined for post-harvest processing or other treatment. Change: Reword "..untreated raw and those that have been subject to post-harvest..."	**New Zealand**
SECTION VII - ~~ESTABLISHMENT:~~ PERSONAL HYGIENE	
Paragraph 27	
Véase la Sección ~~VI~~12 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección VII de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION VIII – TRANSPORTATION	
Paragraph 28	
Véase la Sección ~~IX~~15 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección VIII de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION IX - PRODUCT INFORMATION AND CONSUMER AWARENESS	
Paragraph 29	
Véase la Sección ~~VIII~~14 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección IX de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*.	**Venezuela (Bolivarian Republic of)**

"Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	
Paragraph 30	
In addition, programs for consumer information should be directed at consumers with increased susceptibility to contracting vibriosis (see para. 100 of the *Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic Vibrio Species in Seafood*) to help consumers make informed choices about purchase, storage, shelf-life labelling and appropriate food ~~preparation~~ preparation, handling and consumption of live and raw bivalve molluscs, taking into consideration the specific regional conditions and consumption habits.	**Canada**
Además, los programas de información al consumidor deberían dirigirse a los consumidores que tengan mayor predisposición a contraer vibriosis (véase el párr. 100 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de* ~~Vibrio~~ *Vibrio en los alimentos de origen marino*) para ayudar a los consumidores a tomar decisiones con conocimiento de causa en cuanto a la compra, el almacenamiento, el etiquetado de la vida útil y la preparación correcta y el consumo adecuado de los moluscos bivalvos vivos y los moluscos bivalvos crudos, tomando en consideración las condiciones regionales y hábitos de consumo específicos. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
In addition, programs for consumer information should be directed at consumers with increased susceptibility to contracting vibriosis (see para. 100 of the *Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic Vibrio Species in Seafood*) to help consumers make informed choices about purchase, storage, shelf-life labelling and appropriate food preparation and consumption of live and raw bivalve molluscs, taking into consideration the specific regional conditions and consumption habits. Font size different to preceeding section.	**ICUMSA**
Paragraph 31	
Véase la Sección 9.3 (Etiquetado de los productos) de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de* ~~Vibrio~~ *Vibrio en los alimentos de origen marino* y las secciones ~~I~~1-7 y ~~II~~2-7 de la *Norma para los moluscos bivalvos vivos y los moluscos bivalvos crudos* (CXS 292-2008). "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 32	
Véase la Sección 9.4 (Información a los consumidores) de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de* ~~Vibrio~~ *Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION X - TRAINING AND COMPETENCE	
Paragraph 34	
Véase la Sección ~~IV~~10 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección X de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de* ~~Vibrio~~ *Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**

PART II. BIVALVE MOLLUSCS CONSUMED IN PARTIALLY TREATED STATE[25]	
PART II. BIVALVE MOLLUSCS CONSUMED IN PARTIALLY TREATED STATE[25] Given the multiple previous references to partial treatment in the earlier sections and that the control measures described in Part 1 should be implemented in partially treated molluscs we wonder whether a separate section is necessary or if it can be combined with Part 1	**New Zealand**
Note 25 Se considera confuso que, en el pie de página, superíndice 25, se indique que "La Parte II se aplica solo a los productos que son parcialmente tratados, excluyendo el procesamiento posterior a la cosecha"; mientras que en el Numeral 43 se indica que "Los controles descritos en esta sección generalmente se aplican a la manipulación y el procesamiento posterior a la cosecha". En este sentido, se considera necesario establecer si existen diferencias entre ambos procesamientos mencionados, así como establecer definiciones que permitan comprender las diferencias.	**Venezuela (Bolivarian Republic of)**
3.1 Environmental hygiene	
3.1 Environmental ~~hygiene~~control	**Canada**
Paragraph 35	
Véase la Sección ~~3.1~~8.1 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección 3.1 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 38	
Véase la Sección ~~3.2~~8.2 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección 3.2 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 39	
Véase la Sección ~~3.3~~8.3 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección 3.3 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Paragraph 40	
The control measures described in Section III (Primary production) of Part I should be implemented to achieve at least an equivalent level of protection for bivalve molluscs to be consumed live or raw ~~despite the fact that~~ even though these bivalve molluscs are to be consumed after partial treatment.	**Canada**
The control measures described in Section III (Primary production) of Part I should be implemented to achieve at least an equivalent level of protection for bivalve molluscs to be consumed live or raw despite the fact that these bivalve molluscs are to be consumed after partial treatment.	**ICUMSA**

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SECTION IV - ESTABLISHMENT: DESIGN ~~AND~~ OF FACILITIES AND EQUIPMENT	
SECCIÓN IV – ~~PROYECTO Y CONSTRUCCIÓN DE LAS INSTALACIONES~~ ESTABLECIMIENTO: DISEÑO DE LAS INSTALACIONES Y ~~EQUIPO~~EQUIPOS "EQUIPOS" por "EQUIPO"	**Venezuela (Bolivarian Republic of)**
Paragraph 41	
Véase la Sección ~~VI~~9 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección IV de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION V - CONTROL OF OPERATION	
Paragraph 42	
Refer to Section ~~7.1~~13.1 of the *General Principles of Food Hygiene* (CXC 1-1969), Section 7 of the *Code of Practice for Fish and Fishery Products* (CXC 52-2003), the *Guidelines for the Validation of Food Safety Control Measures* (CXG 69-2008) and Section 5.1 of the *Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic Vibrio Species in Seafood*. Competent authorities should ensure that the food business operator is able to verify the delivery of any partial treatment and additional control measures necessary to ~~assure~~ ensure the safety of the product.	**Canada**
Véase la Sección ~~7.1~~13.1 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003), las *Directrices para la validación de medidas de control de la inocuidad de los alimentos* (CXG 69-2008) y la Sección 5.1 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~Vibrio en los alimentos de origen marino*. Las autoridades competentes deberían asegurarse de que el operador de la empresa alimentaria sea capaz de verificar la administración de algún tratamiento parcial y las medidas de control adicionales necesarias para garantizar la inocuidad del producto. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
Refer to Section ~~7.1~~13.1 of the *General Principles of Food Hygiene* (CXC 1-1969), Section 7 of the *Code of Practice for Fish and Fishery Products* (CXC 52-2003), the *Guidelines for the Validation of Food Safety Control Measures* (CXG 69-2008) and Section 5.1 of the *Guidelines on the Application of General Principles of Food Hygiene to the Control of Pathogenic Vibrio Species in Seafood*. Competent authorities should ensure that the food business operator is able to verify the delivery of any partial treatment and additional control measures necessary to assure the safety of the product. Font size different to preceeding section and the same error occurs in the following two sections	**ICUMSA**
Paragraph 43	
The controls described in this section generally apply to post-harvest handling and processing. Control of *V. parahaemolyticus* and *V. vulnificus* will typically require the stringent application of ~~Good Hygienic Practices~~ GHPs and other supportive programs. These prerequisite programs, together with HACCP, can provide a sound framework for the control of *V. parahaemolyticus* and *V. vulnificus* in bivalve molluscs.	**Canada**
Paragraph 44	

V. parahaemolyticus is generally more resistant than *V. vulnificus* to any given treatment. Therefore, a process that is effective for *V. vulnificus* may not be as effective for *V. parahaemolyticus*. Any measure or practice to significantly reduce or limit but not necessarily completely eliminate *V. parahaemolyticus* and *V. vulnificus* in bivalve molluscs should be adequately validated to ~~assure~~ ensure that the control measures are effective and such validated control measures ~~as practiced~~ should be implemented under an HACCP system.	**Canada**
Paragraph 45	
Véase la Sección ~~4.1~~13.2 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003). El tratamiento térmico parcial de los moluscos bivalvos debería asegurar que la temperatura interna de los moluscos bivalvos llegue a la temperatura que ~~garantice~~ logre una reducción de *V. parahaemolyticus* y *V. vulnificus*. ~~Debería~~ Debe ~~asegurarse~~ garantizarse que se logre el tiempo y la temperatura del tratamiento validado. Después del tratamiento térmico parcial, la proliferación de *V. parahaemolyticus* y *V. vulnificus* debería estar controlada. Corresponde decir "debe" en lugar de "debería"	**Uruguay**
Se sugiere considerar incluir las temperaturas internas que garanticen una reducción de V. parahaemolyticus y V. vulnificus para la cocción, para el correcto diseño de tratamientos de temperatura y tiempo. Del mismo modo, se sugiere proporcionar mayor información sobre los mecanismos de control de la proliferación de V. parahaemolyticus y V. vulnificus, por ejemplo, con rangos de temperatura de refrigeración recomendados.	**Venezuela (Bolivarian Republic of)**
Paragraph 47	
Control measures should be in place to avoid cross contamination between bivalve molluscs before partial treatment and after partial treatment.~~]~~	**Canada**
SECTION VI – ESTABLISHMENT MAINTENANCE ~~AND SANITAION~~, CLEANING AND DISINFECTION, AND PEST CONTROL	
Paragraph 48	
Véase la Sección ~~V~~11 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección VI de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas ~~de~~ de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION VII - ~~ESTABLISHMENT:~~ PERSONAL HYGIENE	
Paragraph 49	
Véase la Sección ~~VI~~12 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección VII de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION VIII – TRANSPORTATION	
Paragraph 50	
Véase la Sección ~~VIII~~14 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección 9.1 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**

Paragraph 50	
Véase la Sección ~~VIII~~14 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección 9.1 de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION IX - PRODUCT INFORMATION AND CONSUMER AWARENESS	
Paragraph 52	
Véase la *Norma general para el etiquetado de los alimentos preenvasados* (CXS 1-1985) y la Sección ~~II~~2.7 sobre el etiquetado en la *Norma para los moluscos bivalvos vivos y los moluscos bivalvos crudos* (CXS 292-2008). Cuando proceda, las etiquetas de los productos deberían incluir información sobre las prácticas de manipulación inocua y recomendaciones para el almacenamiento. Numerales 52 y 53, se considera que las recomendaciones para el etiquetado en ambos numerales son muy similares entre sí.	**Venezuela (Bolivarian Republic of)**
Paragraph 54	
Consulte la Sección 9.4 (Información a los consumidores) de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**
SECTION X - TRAINING AND COMPETENCE	
Paragraph 56	
Véase la Sección ~~IV~~10 de los *Principios generales de higiene de los alimentos* (CXC 1-1969), la Sección 7 del *Código de prácticas para el pescado y los productos pesqueros* (CXC 52-2003) y la Sección X de las *Directrices sobre la aplicación de los principios generales de higiene de los alimentos para el control de las especies patógenas de ~~Vibrio~~ Vibrio en los alimentos de origen marino*. "Vibrio" al referirse al género de la bacteria debería estar en letras itálicas.	**Venezuela (Bolivarian Republic of)**